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The Liberty Bell route's
800 series interurbans

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THE LIBERTY BELL ROUTE'S 800 SERIES INTERURBANS

History and Roster

Editor
RANDOLPH L. KULP

Associate Editors
JOHN P. SCHARLE
HOWARD P. SELL

CONTRIBUTORS

Frederick E. Barber, Allentown
John J. Bowman, Jr., Lancaster
Thomas P. Brown, Souderton
Wallace L. Davis, Lanark
James F. Dillon, Philadelphia
Harold D. Forsyth Collection
D. P. Grimes, Reading
Charles W. Houser, Sr., Allentown
Howard E. Johnston, Plainfield, N. J.
Oliver I. Kufen, Allentown
Orville S. Kulp, Allentown
Randolph L. Kulp, Allentown
Stephen D. Maguire, Belmar, N. J.
Elwood C. McEllroy, Allentown
John P Scharle, New York, N. Y.
Howard P. Sell, Allentown

APRIL, 1958

LEHIGH VALLEY CHAPTER
NATIONAL RAILWAY HISTORICAL SOCIETY, INC.

ALLENTOWN, PENNSYLVANIA

BLACK GOLD

INTRODUCTION

Electric interurban railway systems of the United States appeared, flourished, and declined within two generations of mankind. During the years spanning 1910 and 1930, wooden or steel electrically propelled cars, resembling standard steam railroad coaches, drawing power for their motors from overhead wire or a third-rail and operating mostly on private right of way, either as single units or in trains, successfully challenged steam railroads for inter-community passenger traffic—these were the interurban's "golden years".

Whirring through farm lands, villages, and towns nestled in the eastern fringe of Pennsylvania-German countryside between Allentown and Philadelphia, from 1902 until 1951, were high speed limited cars assigned to the frequent service scheduled by the Lehigh Valley Transit Company's Philadelphia Division, popularly termed the "Liberty Bell Route". Various car types operated during the half century, but the 800 series cars, serving LVT's "golden years", from 1912 until 1932, were a symbol and proud servants for the Lehigh Valley residents. Accenting electricity's broad ability to extend man's activities, they did so with comparative luxury and much dignity. They mark a highpoint in interurban car development when plush, mahogany, stained glass, and pleasing curves, combined with advanced electrical and mechanical design, provided a transportation medium greatly superior to any other kind then available.

Capable of a mile-a-minute speed, the 800 series cars, by 1914, lowered the traveling time between Allentown and Philadelphia business districts from four and one-half hours, established in 1903, to two hours and fifteen minutes, including the subway-elevated trip from the 69th Street Terminal. A one day shopping trip, theatre attendance, a visit to the zoological garden or an amusement park, or a historical sight-seeing tour of Philadelphia became commonplace for the small community and rural folk, mostly Pennsylvania-Germans, residing within view of the tracks. Lehigh Valley business firm representatives personally completed transactions in the Philadelphia mart within a few hours; likewise Philadelphia salesmen found the Lehigh Valley area a lucrative territory.

Courteous crew members, often speaking the "Pennsylvania Dutch" dialect to each other and to many passengers; clean, comfortable, and modern cars; operational efficiency; beautiful pastoral views; and flourishing towns enroute became the "Liberty Bell Route" trademark.

The historical information herein recorded is a blend of events personally experienced by numerous Lehigh Valley Transit Company employees, personal observations of Lehigh Valley Chapter members, facts recorded in the Allentown **Morning Call** and the **Chronicle and News,** electric railway trade journals, and various LVT brochures, timetables, and maps.

Two Lehigh Valley Chapter members, one as a young man and the other as a schoolboy, photographed the 800 series cars on their first day in Allentown. Orville S. Kulp photographed No. 801 of the first group in August, 1912, and Howard P. Sell, No. 809 of the second group in July, 1913. In addition, Mr. Sell recorded No. 800 on film near Twelfth and Gordon streets in the summer of 1913.

To all persons listed on the title page as contributors and to others who assisted in producing this publication, the chapter membership extends its sincerest gratitude. Comments from readers will be graciously received.

As its third publication, the Lehigh Valley Chapter, National Railway Historical Society, Inc. adds this, the complete history and roster of the 800 series interurbans of the Lehigh Valley Transit Company in Allentown, Pennsylvania, to recorded railway history. We who were conveyed within the palatial interurbans' sturdy structure as they sped from the Lehigh Valley's Queen City to the City of Brotherly Love, fifty-five miles away, cannot properly express in words the prevailing atmosphere of confidence, relaxation, and grandeur. Streamlining, stainless steel, aluminum, and successively smaller bodies, although packed with power, will not quite equal the glamour of these magnificent interurbans. May their life-story bring you the pleasure that we, who knew them well, carry with us.

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Editor—Randolph L. Kulp

April 1, 1958
Associate Editors
John P. Scharle
Howard P. Sell
Editor
Randolph L. Kulp
602 St. John Street
Allentown, Penna.

The Liberty Bell Route's 800 Series Interurbans

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"Father Penn to Father Allen", an ink sketch portrayal showing the two colonial gentlemen joining hands, appearing on page one of the Allentown **Morning Call,** Thursday, December 12, 1912, heralded the Lehigh Valley Transit Company's high speed electric interurban railway inaugural between Allentown and Philadelphia. Simultaneously the heavy, powerful steel framed 800 series interurban cars made their debut in "Liberty Bell Route" passenger service.

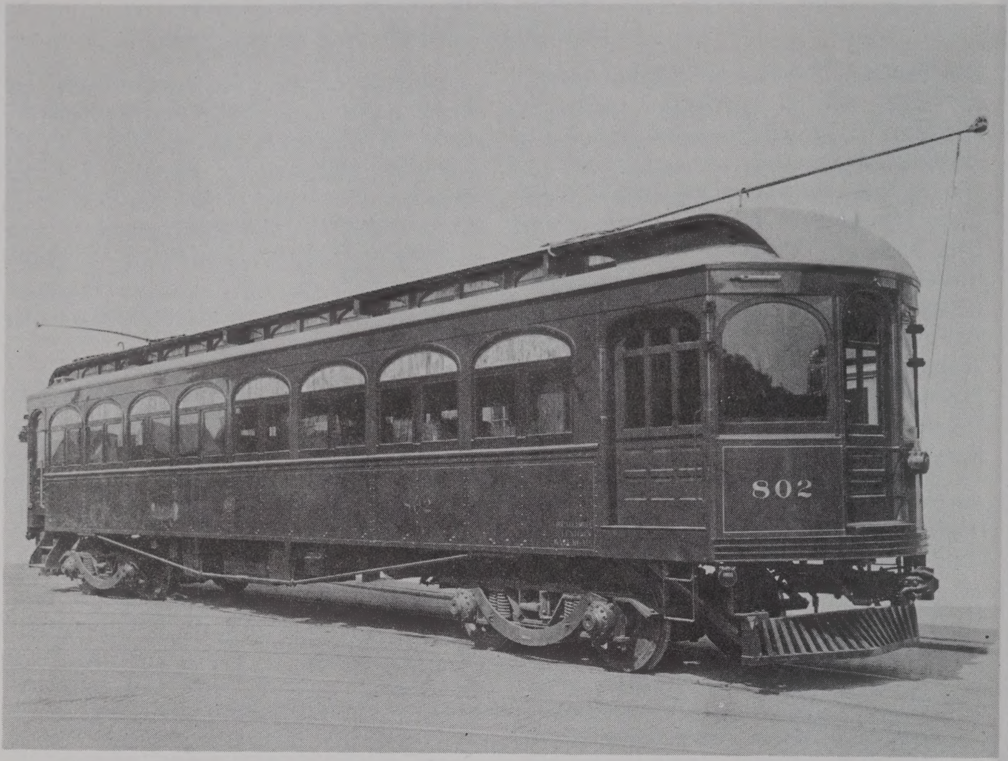
Two days before the advent of high speed modern interurban service, a local newspaper editor headed his commentary "Al Johnson's Dream Is Realized". In 1901, Albert L. Johnson, Lehigh Valley Traction Company and Philadelphia and Lehigh Valley Traction Company president, had ambitiously planned a vast high speed interurban network from Allentown to Philadelphia to New York but did not live to realize his dream. His immediate successors, more practical than adventurous, abandoned Philadelphia-New York division plans but struggled to complete the Allentown-Philadelphia (Chestnut Hill) section in 1903, one year later than expected.

Mr. Johnson also predicted the eventual operation of large electric railway cars, resembling conventional steam railroad coaches, between Allentown and Philadelphia-a prophecy fulfilled by the majestic 800 series interurbans.

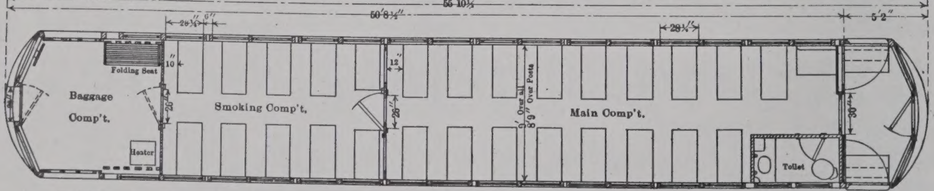
The Lehigh Valley Transit Company, a consolidation of Johnson's properties by new owners, effective 1905, before introducing heavy interurban car operation, conducted a costly and lengthy Philadelphia Division right of way rehabilitation and relocation program. Men of vision, Harry C. Trexler, George H. Frazier, William S. Harrity, R. P. Stevens, Edward C. Spring, among others, between 1905 and 1912, ably directed the conversion from a long winding roadside route, adequate for its day, to a modern interurban system mostly built to steam railroad standards.

A five million dollar expenditure revised, relocated, and rebuilt practically all trackage between Allentown and Lansdale; constructed a new route from Lansdale to Norristown; installed a track circuit block signal system; placed Hoeschen warning signals at dangerous crossings; replaced small D.C. steam engine generator stations with a new A.C. steam turbine central station in Allentown feeding nine A.C.—D.C. rotary convertor substations, four of which were on the "Liberty Bell Route", through high tension tranmission lines; constructed passenger and freight stations in various towns; installed a telephone dispatching system and Egry train order registers in siding boxes enroute; connected station, carbarn, and substation phones with the dispatching system; and erected the heavy plate girder South Allentown viaduct in place of the spindly deck truss structure built in 1893 across Trout Creek meadow and the Philadelphia and Reading Railroad's (Reading Company) East Penn yard for single truck cars.

Philadelphia and Western Railway owners, also LVT's financial advisors, drafted an arrangement for LVT limited car entrance into the Union, or 69th Street, Terminal in Upper Darby via their third rail trackage, entirely on private right of way, from Norristown.



No. 802, original design, 1912. Note long trolley poles with wheels; whistle above motorman's window; even appearance of window, passenger entrance and baggage compartment arches; roller bearing journals on the trucks; third rail equipment has not been attached to the trucks and roof mats are missing.



Lehigh Valley Transit—Plan of Steel Car for High-Speed Service Between Allentown and Philadelphia

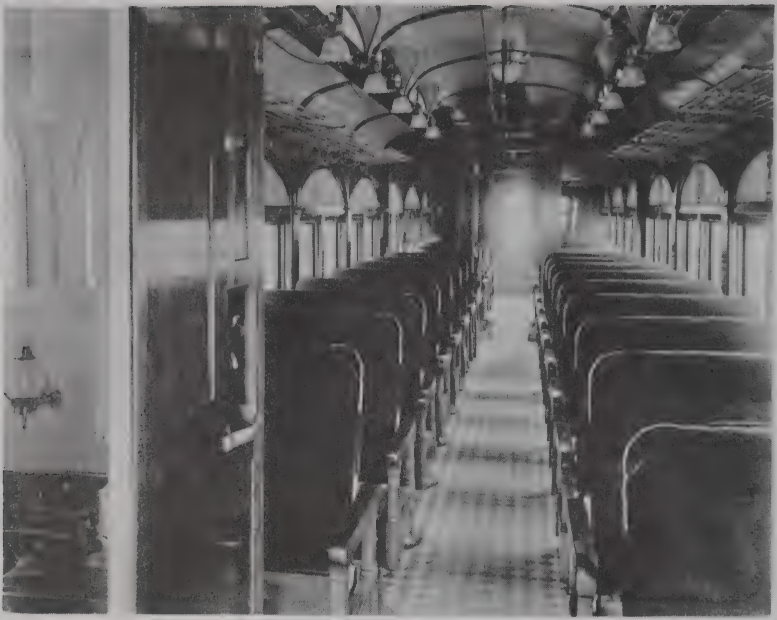
Electric Ry. Journal

Briefly, P&W assumed complete responsibility for LVT car operation over their trackage in return for all revenue collected; in comparison, LVT, by supplying the car, derived increased increments from patronage especially attracted to the high speed service offered to and from Philadelphia and towns enroute between Norristown and Allentown.

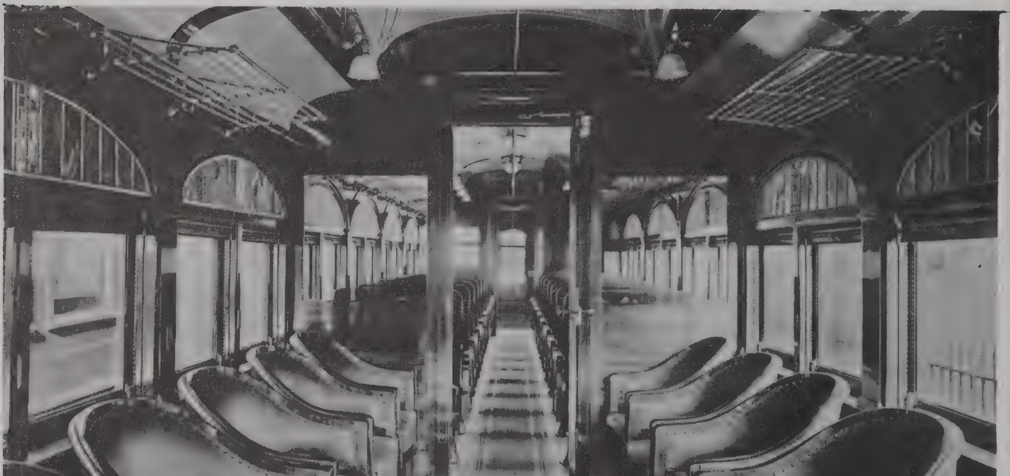
LVT officials selected an interurban car, designed for high speed Pullman style service, at almost the last possible moment. On February 10, 1912, President R. P. Stevens ordered six cars, Nos. 800 to 805, similar to Nos. 165 and 166 of the midwest's Lake Shore system, from the Jewett Car Company in Newark, Ohio.

Distinguishing exterior features of the fifty-five foot, ten and one-half inch steel frame and plate body, setting on two Baldwin No. 78-30-A arch bar trucks with standard roller bearings and thirty-six inch forged steel wheels, included a typical Jewett style wood and canvas railroad roof; sixteen clerestory colored arch windows; eight Automatic ventilators; a chimney; fifteen pairs of cream and green leaded cathedral glass panels, each pair spanning two one-quarter inch polished plate glass windows and forming a pocket, between the inner and outer leaded glass arches, into which the windows could be raised high enough to permit unobstructed view; two small single leaded glass arched lavatory windows; exterior wood sheathing and finish above the window sills; storm sashes with one-quarter inch plate glass; two arched train doorways, and doors with sectioned arch windows; a large arch window on both sides of each train door; two arched passenger entrances and doors with sectioned arch windows; two arched baggage entrances and sliding doors with small panes of glass forming an arch effect; a stirrup step and a grab handle at each baggage doorway; two three-step passenger entrances with two pairs of grab handles and floor-level trap doors; a metal lined hole above each train door through which the conductor's signal cords were connected between cars for train operation; head light brackets and fittings at the train doors; two combination flag and signal lamp brackets on each corner post; two leather covered protective chains across the train door entrances; two standard multiple-unit wood pilots; Earll trolley retrievers, with rope attached to the poles; anti-climbers at both ends; ten inch single tone whistles mounted above the right front and left rear windows; and a varnished medium chrome green body color; gold striping, monogram, letters, and large numbers; a chrome yellow roof; and black anti-climbers, head light, and undercarriage. The interior was partitioned into five sections; baggage, smoking, coach, lavatory, and passenger vestibule.

The coach, or main section, contained seventeen double green plush high back walkover seats with arm and head rests and brass check holders; a short single green plush conductor's side seat; insulated double floor to eliminate truck and compressor noises; linoleum floor covering; a five-eighth inch rubber center aisle mat; solid inlaid mahogany woodwork from floor to ceiling; Patasote silk-lined window curtains; O. M. Edwards bronze window fittings; bronze luggage racks; brass door knobs, locks, and checks; a light blue empire ceiling; twenty 16 c.p. lamps in Holophane glass dome lighting fixtures on the ceiling supplied at line voltage; twenty 16 c.p. lamps in cast brass side brackets with Holophane reflectors, spaced over the seats at



Interior of No. 802 looking from passenger vestibule toward baggage compartment.



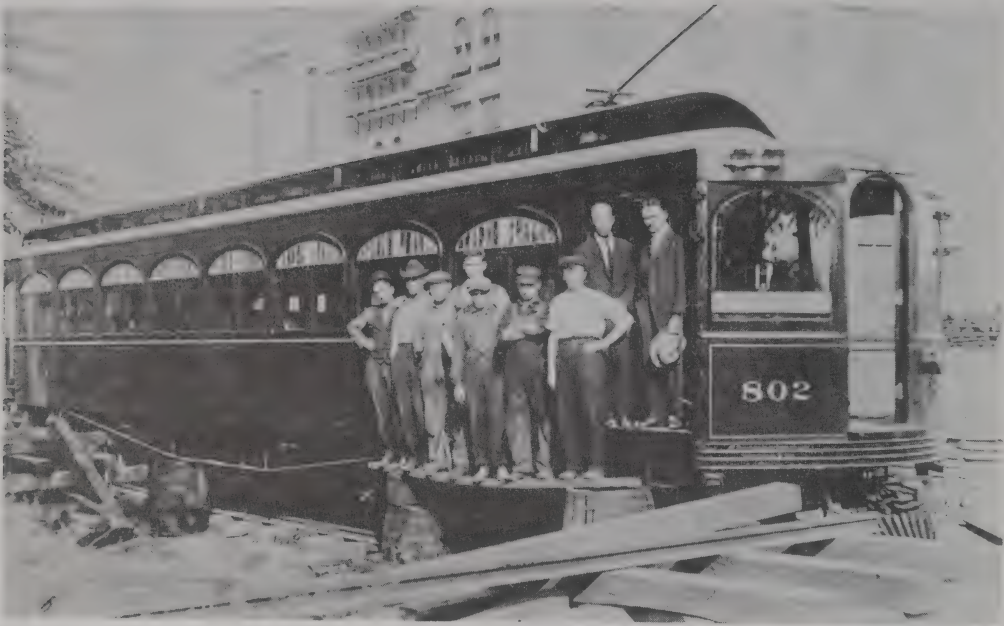
Interior of No. 805 with club chairs in the smoker. No 804 was outfitted identically. Black leather walkover seats replaced the club chairs in both cars within a short time.

five foot intervals, supplied from Edison A6 storage batteries, to maintain even interior lighting regardless of car's acceleration on hills, passing through third rail gaps, or pole's loss of contact with the overhead wire; a one-half inch round leather conductor's signal cord, suspended from the ceiling above center aisle by leather straps, attached to a cab bell at each end; and a conductor's red emergency cord, strung beneath the Holophane lights on the left side, connected to an emergency air brake valve. Tickets and an excess cash fare collection system eliminated the need for a register, and there were no advertising card racks. Seating sections were heated by a Smith forced air coal heater floor level duct on the left side supplemented by electric heaters on the right side.

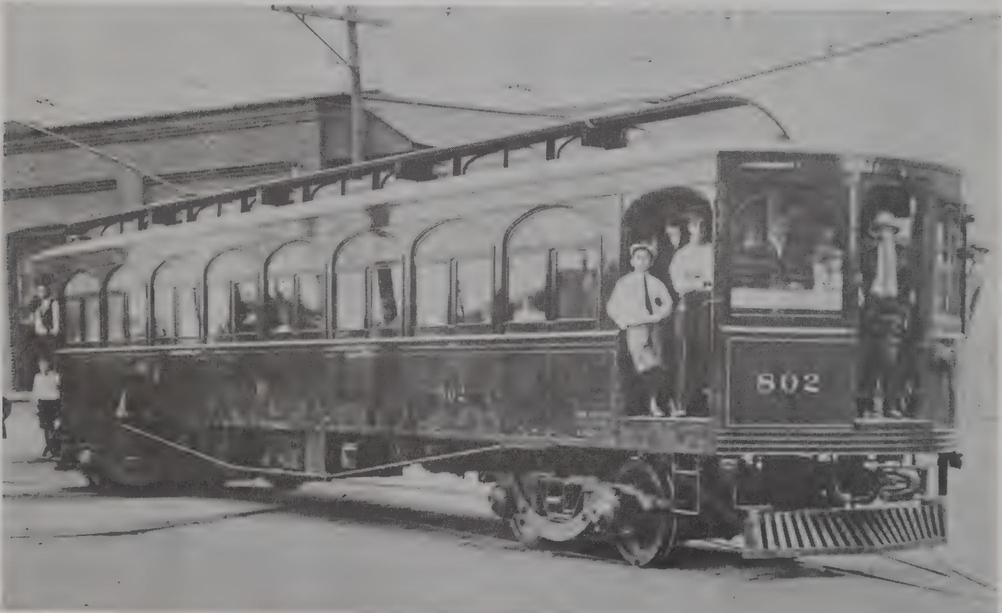
An all-white, five foot, Pullman style tiled lavatory, located in the coach section next to the left passenger entrance included a door with check and lock; a monel metal basin; running water supplied from a sixty gallon tank; an Eckert flush type porcelain hopper; liquid soap and paper towel dispensers; light fixtures; plate glass mirrors; and a linoleum floor covering. An iced drinking water faucet, in a recessed section, and a free paper cup dispenser were attached to the exterior lavatory wall along the aisle for passengers' convenience.

Features of the smoking compartment, partioned from the coach section by mahogany panels, two windows, and a windowed door with check, included eight double black leather walkover seats with arm rests and two without, in cars Nos. 800 to 803 and ten single black leather upholstered mahogany club chairs by Karpen in Nos. 804 and 805; ten polished brass cuspidors; and eight bronze match striker plates. Other furnishings were identical to those in the coach section.

Electrical and operating equipment were properly distributed throughout the car. Located in the baggage compartment were a Westinghouse C36C controller, on the right hand side, with a compact removable control handle, a deadman prototype, which returned to the off position unless held firmly; a pushbutton for manual acceleration; a Westinghouse M22 engineer's valve; valves for selecting straight or automatic air; a Peacock hand brake wheel; duplex air gauges; head light switch; control circuit and reset switches; air whistle and sander valves; a switchboard with third rail and overhead transfer switch, lighting, heating, air pressure, compressor switches, and fuses. Four Westinghouse 303A one hundred and fifteen horsepower motors developed a sixty-two miles per hour maximum speed at six hundred volts. Equipment for train operations included a nine wire train line with cable receptacles at each corner below the anti-climbers; a Westinghouse AL C36 control system; and Westinghouse car and air couplers. A D-2-EG air compressor and reservoirs, switch group, storage batteries, cables, resistors, fuse boxes, re-railer, jack and handle, brake equipment, receptacle for head light plug, line switch, and reverser were attached to the floor's underside. Roof equipment included two long trolley poles with wheels, stands, springs, hooks, cable leading to the switchboard, and a spare pole securely fastened in the center. Two red, green, and white flags and Adlake oil lamps in corner post sockets comprised the classification and marker system. The wire and plug of the portable arc head light, fastened to bars and brackets across the train doors, fitted into a receptacle underneath the anti-climber to the left of the



No. 802 with LVT maintenance crew and officials shortly after being assembled in August, 1912, at River Front Yard.



No. 802 leaving storage yard paralleling the 14th Street Carbarn for introductory tour of Allentown late in August, 1912.

train door.

Equipment in the seven foot baggage compartment, the motorman's position, or No. 1 end, included a set of controls, sundry switches, and foot gongs. One perforated metal destination sign hung on brackets in the lower part of the right front window before an illuminated box and the other, in storage, below the left front window. Only two destinations were used—"Allentown" and "Philadelphia". Behind the motorman's position was the wall cabinet with its various switches and storage space for spare lamps, fuses, and switches. A double seat was located between the baggage doorway and the wall, or smoker-baggage compartment partition. On the left side were the coal heater and coal bin; two white and two green Adlake classification lamps in sockets on a head board; and a wall hanger for daytime storage of the portable arc head light. Other equipment, placed for convenience, included a whistle cord, switch iron, conductor's signal bell, third rail paddles, a train line jumper cable, and a motorman's tool box. There was ample floor space for luggage, bass drums, sample cases, newspapers, and the like. A door with a check and a window with its shades always drawn opened into the smoking compartment aisle. Seating was not provided for the motorman—each supplied his own stool.

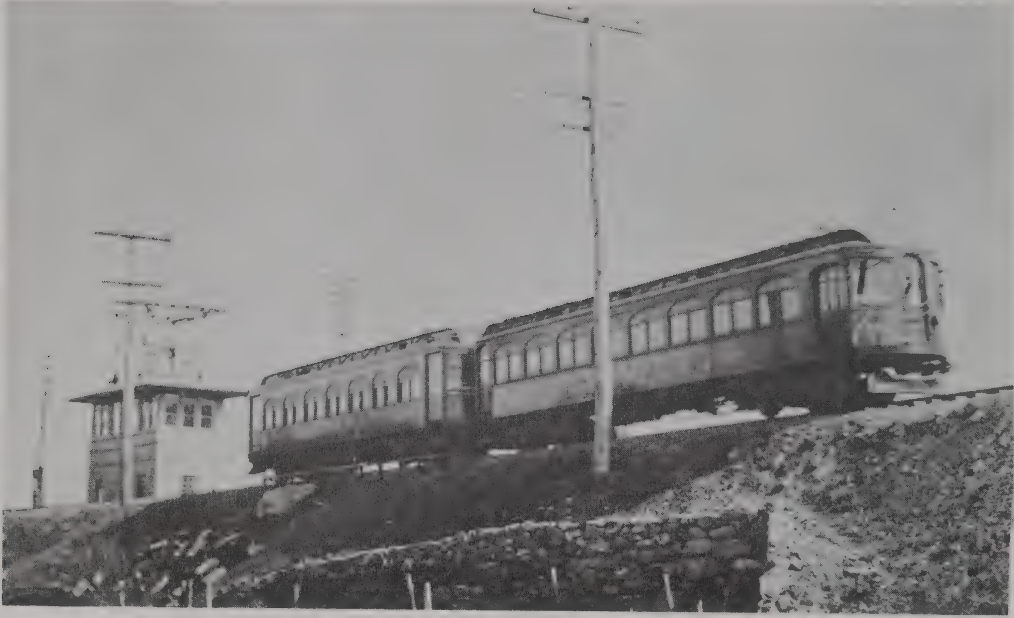
Later, when motormen opened the baggage doors for ventilation during the summer months, a leather covered chain was strung across the doorways for safety reasons. In 1923 an iron bar replaced the chain, and it became common practice for the motorman to rest his right arm on the bar during the long distance between stations. Only LVT personnel were permitted in the baggage compartment during operation.

Right hand controls, brakes, and other equipment identical to that in the baggage compartment; a P&W platform stepping board, linoleum floor covering; a windowed sliding door opening into the coach section; the conductor's equipment box with two red, white, and green flags; and after daylight, lighted white and red hand lanterns setting on the floor were the main features of the standard vestibule, or No. 2 end. Later, a tailored leather cover shielded the greasy engineer's valve and a brass cap covered the controller shaft to avoid soiling passengers' clothing.

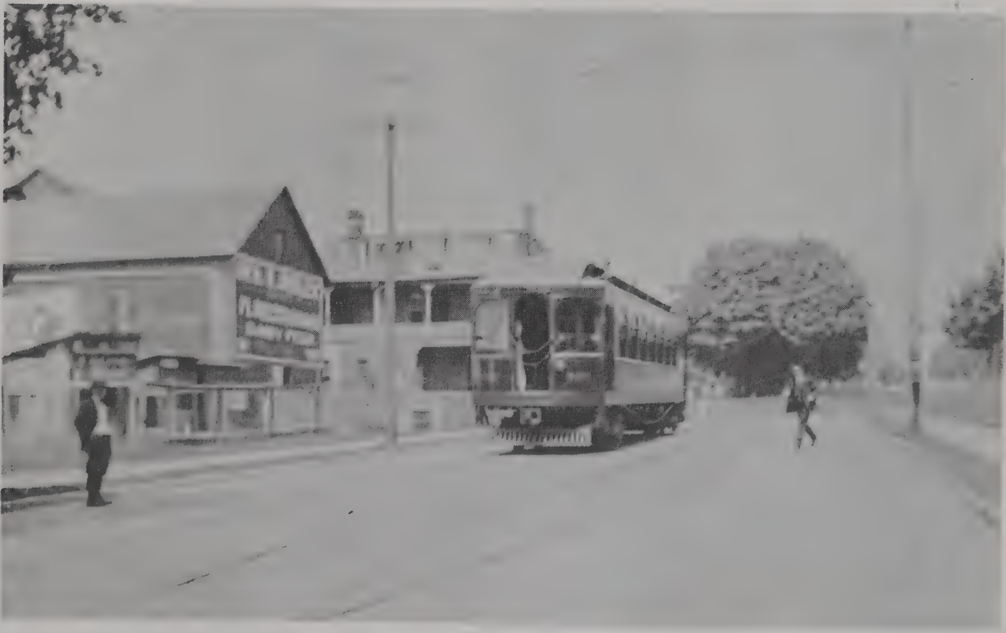
Late in August, 1912, the Lehigh Valley Railroad shunted flat cars with interurban bodies Nos. 800 to 805 over the interchange track into LVT's River Front yard. Transit company maintenance employees jacked the bodies individually onto prearranged supports; towed, with work cars, the flat cars out from under the interurban bodies; lowered the bodies onto properly spaced trucks which had been purchased directly from the manufacturer; connected motor leads; and operated the cars under their own power to the 14th Street shops for further adjustments and inspection. No. 801 was the first car assembled. Between late September and early December, shop personnel attached two sets of third rail shoes, brackets, cables, and beams, designed by H. S. Farquhar of the P&W staff, to each truck.

Meanwhile, on August 26, 1912, the Philadelphia and Western Railway inaugurated passenger service from 69th Street in Upper Darby to Norristown, but the incomplete Lansdale-Norristown section delayed high speed service emanating from Allentown.

LVT formally presented their handsome interurbans to the pub-



LVT No. 804 and P&W No. 34 at Villanova Junction early in 1913 during train operations between Norristown and the 69th Street Terminal.



No. 800 on Gordon Street near North Twelfth Street returning to the 14th Street Carbarn in the summer of 1913.

lic on August 31, 1912, by operating No. 805, bedecked with American Flags, patriotically colored bunting, a placard fastened across the operating end inscribed "Welcome To Our City", and another at the passenger entrance "I Am Here To Serve You", along Hamilton Street between the Allentown Terminal station and Seventeenth Street. At the September, 1912, Allentown Fair, the same car, with a uniformed attendant, was exhibited on a short temporary spur track which had been extended from the Slatington Division through the Chew Street gate at Lafayette Street into the fairgrounds. This temporary connection, except for the trackage on which the car set, was removed after the car had been properly placed and re-installed for the car's removal at the fair's conclusion. Visitors entered No. 805 at the passenger entrance and departed via wooden steps erected at the baggage compartment doorway. Distributed literature announced the new service's inaugural date as October 25, 1912, or thereabouts. No. 802 also traversed city trackage for publicity purposes.

Superintendent Edward C. Spring, relieving the motorman at intervals, initially tested an 800 series car, either No. 804 or 805, on Philadelphia Division trackage to Lansdale on September 12, 1912. Construction delays in underpassing the Philadelphia and Reading Railroad's Stony Creek Branch midway in Broad Siding south of Lansdale and overpassing the Sumneytown Pike south of Broad Siding prevented a trial trip over the Lansdale-Norristown section. St. Louis built 137 and 172 series cars, operating since 1902, maintained regular hourly Allentown-Chestnut Hill schedules between Lansdale and North Wales over the old route while the new route was under construction.

Shortly before midnight, Wednesday, December 4, 1912, construction crews completed the Stony Creek Branch underpass, the obstacle which for several weeks had delayed the new service's inauguration. LVT conducted test runs the following day, timed to proposed regular schedules, to acclimate all concerned with physical characteristics of both cars and right of way. On Monday, December 9th, two single cars completed the first round trips between Allentown and the 69th Street Terminal, and on Tuesday local newspapermen enjoyed a similar trip as President Stevens' guests.

Without formal ceremony, car No. 800 departed from Allentown's Sixth and Hamilton Streets terminus at 7:00 a.m., Thursday, December 12, 1912, with approximately forty passengers, on the historic two hour and fifteen minute limited service inaugural trip to Philadelphia's western suburb. Twenty-four minutes later the first Allentown bound car departed from the 69th Street Terminal. LVT cars, contrary to destination markings, never entered Philadelphia but terminated in Upper Darby six-tenths of one mile west of the boundary line.

President Stevens, as personal observer, accompanied the first southbound limited but changed to the first northbound car at the meeting point, Broad Siding, south of Lansdale. In the evening, after transferring from one car to another throughout the entire day, he returned to Allentown completely satisfied with operations.

Beginning with initial operations on December 12, 1912, and continuing until the summer of 1913, P&W moved LVT's 800 series cars over third rail trackage in trains with their 20 series cars. Southbound the P&W car appeared in

Save a Dollar on the Round-Trip Fare

BETWEEN

PHILADELPHIA and ALLENTOWN

TICKET FARE, One Way, $1.00—(Round Trip, $1.86)

Purchase Tickets and Save Money

RUNNING TIME, ONE HOUR AND 58 MINUTES

High Speed Electric Service

The "Liberty Bell Route" is not only the first high speed interurban electric line in this part of the country, but it is one of the finest and most complete to be found anywhere. Everything that the highest electric railroading skill and most modern equipment and ideas in construction can do, has been done to make the service as perfect as possible. Nearly $5,000,000 has been expended in these improvements.

Steel Coaches

Our new $12,000 interurban express cars are of steel construction, 56 feet in length, have Pullman tiled toilet-rooms with running water, complete smoking compartments upholstered in genuine leather, plush seats in main compartment, inlaid mahogany finish throughout; baggage compartment in each car. Trucks are of the standard railroad type, equipped with four 125-H. P. motors, capable of developing a speed of 60 miles an hour.

Automatic Block Signals

Throughout its entire length the road is of standard rock ballast construction with automatic semaphore block signals, insuring safety, speed and comfort. Many heavy grades have been eliminated, other improvements made, and new private right-of-way has been constructed.

Central City Connections

Cars leave Philadelphia at the 69th and Market Street subway-elevated railway terminal, and Allentown at 8th and Hamilton Streets. The Market Street subway-elevated reaches the business center of Philadelphia within 15 minutes, and stops directly at Broad Street Station, P. R. R., Reading Terminal and Delaware River Ferries and Depots.

Limited Express Service

Limited express cars leave Philadelphia, 69th Street, and Allentown every hour; run through without change, stopping but once in principal towns only. Running time, one hour, 58 minutes. No extra charge for through passengers.

Accommodation Service

Local cars, every hour, stop at all intermediate points.

New Jersey Coast Resorts

Direct connection is made on the Philadelphia Subway for Atlantic City, Cape May, Asbury Park, Ocean Grove and all the New Jersey coast resorts, either via Broad Street Station, P. R. R., or both Camden Ferries.

Baggage

On all express cars 150 pounds of baggage is carried free. Local transfer companies call for, and deliver, baggage to all parts of Philadelphia and Allentown.

For further information address

TRAFFIC DEPARTMENT

The Lehigh Valley Transit Company

ALLENTOWN, PENNA.

A typical LVT ad. Some facts are generalized.

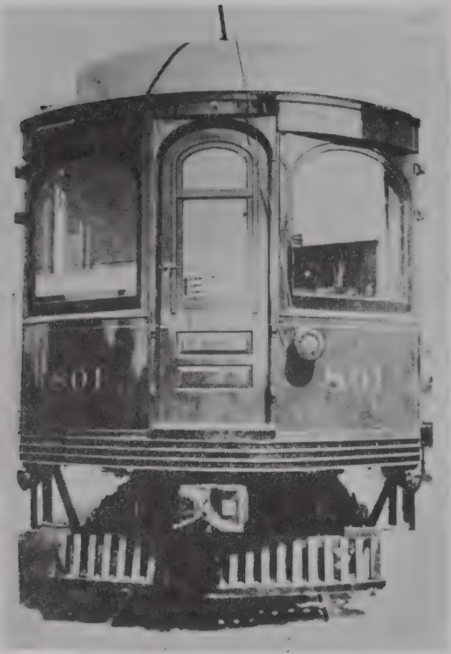
the lead and northbound the LVT car. The fifty-one foot, four inch P&W car's electric and train line equipment included St. Louis No. 161 trucks, seventy-five horsepower GE73 motors, General Electric magnetic multiple unit controls, Van Dorn couplers, and a seven wire train line; in comparison LVT's fifty-five foot, ten and one-half inch car included Baldwin No. 78-30-A Baldwin roller bearing trucks, one hundred and fifteen horsepower WH303A motors, Westinghouse pneumatic multiple unit controls, Westinghouse couplers, and a nine wire train line. After several months of difficulty, attributed to the different equipment installations, the practice was discontinued. An ungainly adapter attached to the 800 series cars' No. 2 end coupler and to one of the P&W cars' couplers, for car and air coupling, was deemed unsatisfactory for continued operation.

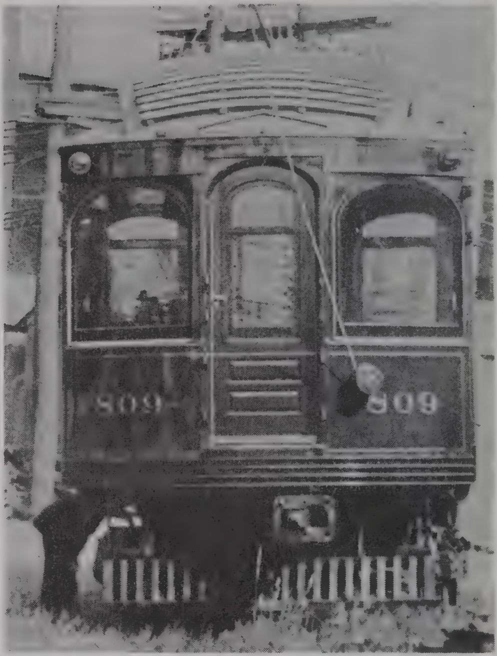
From the summer of 1913 until LVT discontinued passenger movements over P&W trackage on September 23, 1949, P&W employed two methods for LVT car movements, either single units or trains, from Norristown to 69th Street. First, between 1913 and 1931, P&W crews released the northbound limited to LVT crews at the Norristown street-level station on Swede Street and waited one-half hour for the next southbound limited; likewise LVT crews waited one-half hour for the next northbound car. Second, the opening of P&W's elevated station in Norristown eliminated the layover time and established the practice, in effect until 1949, in which P&W and LVT crews stepped to and from northbound and southbound limiteds at Marshall Siding, midway between borough line and the elevated structure, and returned with the other car to their starting points.

As LVT cars or trains entered or left the P&W third rail system at the Norristown elevated structure leading to the Schuylkill River bridge, trackside devices automatically raised or lowered all third rail shoes. In single car operation, conductors lowered or raised the trolley pole while motormen operated a large single pole changeover switch in the switchboard cabinet during a slight pause in a track section in which overhead wire and third rail overlapped. Sometimes the changeover process was accomplished while the car coasted. For trains, since each car collected its own power, the conductor operated the changeover switch and raised or lowered the poles of the second or third cars. Power remained off until the operations were completed. After P&W opened the new Norristown elevated station in 1931, the changeover was accomplished during the stop for passenger loadings.

"Save A Dollar" newspaper advertisements publicized the $1.86 round trip fare between Allentown and Philadelphia via LVT's daily and Sunday hourly electric service from 7:00 a.m. until 10:00 p.m. as being one dollar lower and less time consuming than that offered by competing steam railroads. Hand bills dangling from curbside hitching posts near Allentown business house entrances and other public places carried the same story with maps. Later, excursions to Atlantic City and other seaside resorts via the "Liberty Bell Route" to Philadelphia were similarly advertised. Colored brochures and timetables, illustrated with maps and right of way scenes, were available to the public at all stations, many hotels, tobacco shops, and other public places.

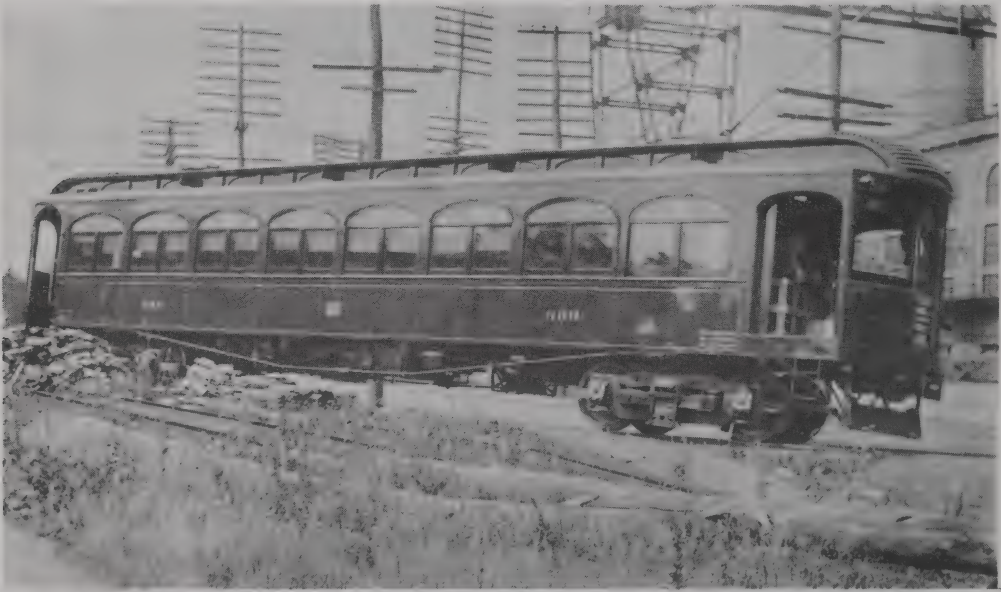
Effective with service inauguration, club-smoker cars Nos. 804 and





No. 801, original design, on Front Street in Allentown shortly after being assembled in August, 1912. Note Westinghouse couplers, hole above train door for conductor's signal cord connections, whistle and lack of roof mats.

No. 809, revised design, shortly after arrival at the River Front yard in July, 1913. Note Tomlinson couplers, roof mats, and water deflector on roof above train door.



No. 809 on LVT track leading to interchange with the Lehigh Valley Railroad near Front Street in Allentown during the first week of July, 1913. The car had just been assembled following its arrival.

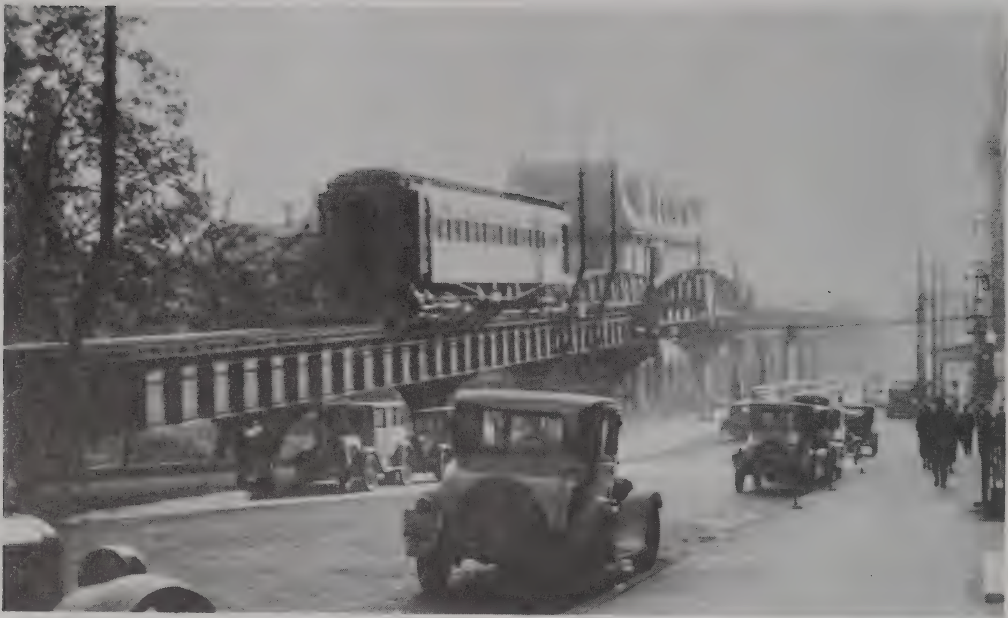
805 were assigned to titled trips: southbound the 8:00 a.m. New Jersey Special; 12:00 noon, Philadelphia Special; 2:00 p.m., Liberty Bell Special; and 6:00 p.m., Quaker City Special. The northbound counterparts were, respectively, the Water Gap Special, Liberty Bell Limited, Lehigh Valley Special, and Allentown Special. Within a few months, when walkover seats replaced the club chairs for increased seating capacity, the titles were discontinued.

The standard Jewett passenger entrance design of cars Nos. 800 to 805 proved unsuitable for use at P&W's high level station platforms. Initially, passenger entrance doors could not be opened until the trap doors were lifted, but LVT reversed the door opening sequence before the cars entered regular service. After service had been inaugurated, passengers, who failed to stoop while entering or alighting at the platforms, struck their heads or disarranged their hats at the low arch. Carpenters, at intervals, removed an eight inch section from the letterboard and extended the arch upwards, marring the even appearance of window and entrance arches.

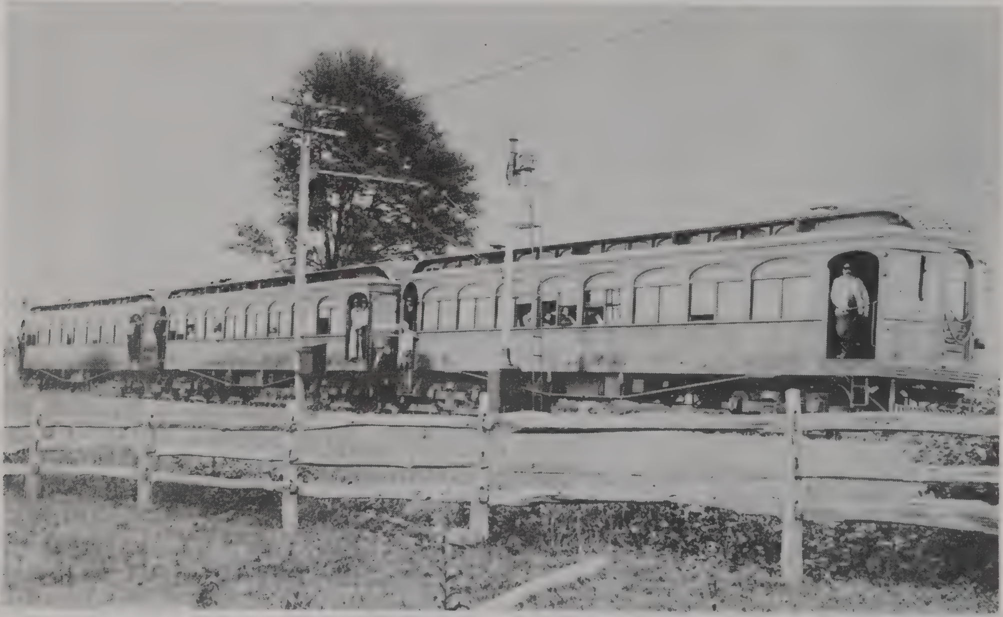
Maximum speed occasionally caused the trolley wheel to leave the overhead wire. In several instances, violent swaying of the very long pole, even though drawn below wire heighth, tore the retriever from its socket. The pole rose again with only the retriever's weight to restrain it. As span wires were encountered, before the motorman could stop the car, the pole and twirling retriever rebounded forcefully against the vestibule roof inflicting damage or ripping holes through both wood and canvas. LVT's mechanical staff discovered that by shortening the pole and increasing trolley stand spring pressure better wheel contact, less arcing, longer wheel life, and reduced de-wirements resulted. Oak wood roof mats were fastened to the roof over both entrances for additional protection.

Continuous track circuit automatic block signals, timetables, and train orders, issued in accordance with standard interurban rules, governed all Philadelphia Division movements. Extra movements displayed two white flags or lamps, and all but the last section of scheduled trains displayed two green flags or lamps at the front end. All cars carried two red Adlake oil signal lamps, lighted only at night, in the No. 2 end's lower, later upper, sockets. Telephones and Egry registers were conveniently located at all sidings in boxes and in stations south of Allentown, including Norristown, for conductor's contact with the division dispatcher at Wales Junction, later in Allentown. Conductors, after writing the dispatcher's orders on triplicate Egry register roll forms, verbally verified the content with the dispatcher, cranked the original and duplicate from the machine, the triplicate remained inside, handed the duplicate to the motorman, and retained the original. LVT timetable rules required a report when entering and leaving the division at Emaus Junction (Emmaus Junction), entering and leaving at Norristown, and reversing direction from a mid-point destination.

In emergencies, the Philadelphia Division dispatcher could halt movements by directing the Sellersville substation operator to open either the oil switch which controlled the 2,300 volt signal system north of Sellersville or the one south, or both, depending upon the location of the cars involved. This interruption caused all semaphores to drop by gravity to the horizontal stop



A southbound 800 series car at the northend of the Norristown elevated structure which connected with the Schuylkill River viaduct. The car is in the third rail-overhead wire over-lap section.



Nos. 810, 809 and 811 southbound at old Brush Siding, north of Norristown, on July 31, 1914, initially testing a three car train operation. For the southbound trip the cars were not arranged according to standard practice.

position. After the dispatcher had been contacted by all conductors of the cars involved, he directed the substation operator to close the switch or switches so that the signal system would function properly.

Retention of the popular "Liberty Bell Route" designation and symbol by LVT for the revised limited trackage was based on historical facts although track mileage on or adjacent to the famous Bethlehem Pike had been reduced. Valley Forge, site of General George Washington's winter camp for the Continental Army during British occupation of Philadelphia in 1777 is approximately six miles west of P&W right of way, and the Zion Reformed Church tower, below which the bell had been safely hidden from the British, virtually shadowed the Allentown terminus at Sixth and Hamilton Streets and is only a few hundred feet east of the South Eighth Street terminus.

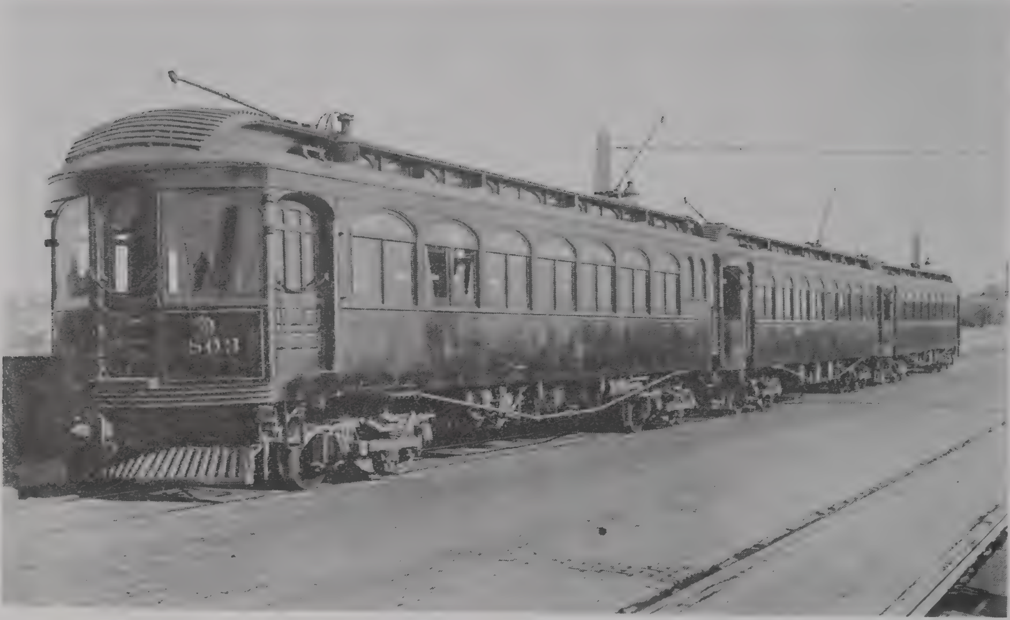
"Liberty Bell Route" limited passenger's one hundred and fifty pound free baggage allowance, usually luggage, a band instrument, or a salesman's sample case, was carried in the 800 series car's baggage compartment. Later, Philadelphia daily and Sunday newspapers and greenhouse products from Lansdale, destined for stations enroute, provided revenue.

Rehabilitation of older Brick Tavern-Quakertown and Lansdale-Souderton trackage was not completed until late in 1913. Consequently, for more than one year, short radius but slightly elevated curves of roadside right of way restricted 800 series cars' operating speed and prevented LVT from establishing their desired schedule.

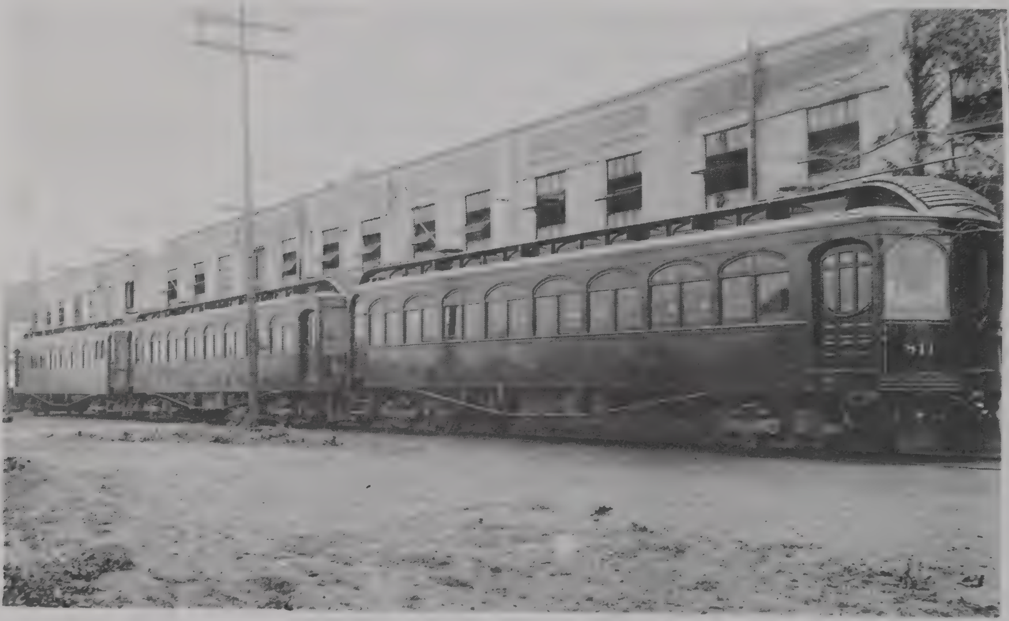
Although 800 series cars were classified generally as a single end type, the complete passenger end controls, installed primarily for shifting and emergency service, permitted normal operation. Cars, having completed a southbound trip in Upper Darby, operated through a wye east of the main line and opposite P&W shops to reverse the motorman's position for the next northbound trip, but in Allentown, between 1912 and 1939, various conditions altered reversal procedures. Between December, 1912, and November, 1913, cars, having completed a northbound trip at Sixth and Hamilton Streets, proceeded, with the motorman at the No. 1 end controls rhythmically tapping the foot gong, to the 14th Street shops via Hamilton, Twelfth, and Gordon Streets and, after servicing, returned to the station via Gordon, Seventeenth, and Hamilton Streets, thereby properly positioned for the southbound trip. Later, cars negotiated the loop from the opposite direction. Effective with the Eighth Street Bridge opening in November, 1913, until Fairview Carbarn opened in South Allentown in May, 1914, the same routine prevailed between the shops and the Eighth and Hamilton Streets terminus.

LVT's 14th Street Carbarn, built in 1907, by 1913 proved inadequate to accommodate the number of cars required to render proper transportation facilities for the Lehigh Valley area's expanding diversified industry. Consequently, after evening inspection and cleaning, 800 series cars were set on either one of two outdoor storage tracks which paralleled Gordon Street.

Enthusiastic and favorable public response accorded the new service pleased LVT officials; within one month holiday and weekend passenger traffic had increased fifty-nine percent. President Stevens telegraphed the Jewett Car Company on January 3, 1913, requesting immediate construction of six additional cars, Nos. 806 to 811,



Nos. 803, 804 and 805 southbound on the Eighth Street Bridge, circa 1919. Train is arranged to conform to standard LVT multiple car operation.



Nos. 811, 807 and 805 on No. O track at the Fairview Carbarn, circa 1919, before leaving for Allentown station for a southbound trip.

two more than originally planned.

Official regulation required a standard garb for all Philadelphia Division motormen and conductors effective April 1, 1913. Motormen, until 1932, dressed in white and indigo striped overalls and coats with nickel buttons and dark blue visor caps with silver pipings; conductors wore blue serge uniforms with brass buttons and blue visor caps with gold pipings. Length of service was indicated by an appropriate bar for one year and a star for each five year period sewn on the left sleeve near the shoulder. Other furnishings remained the employee's choice.

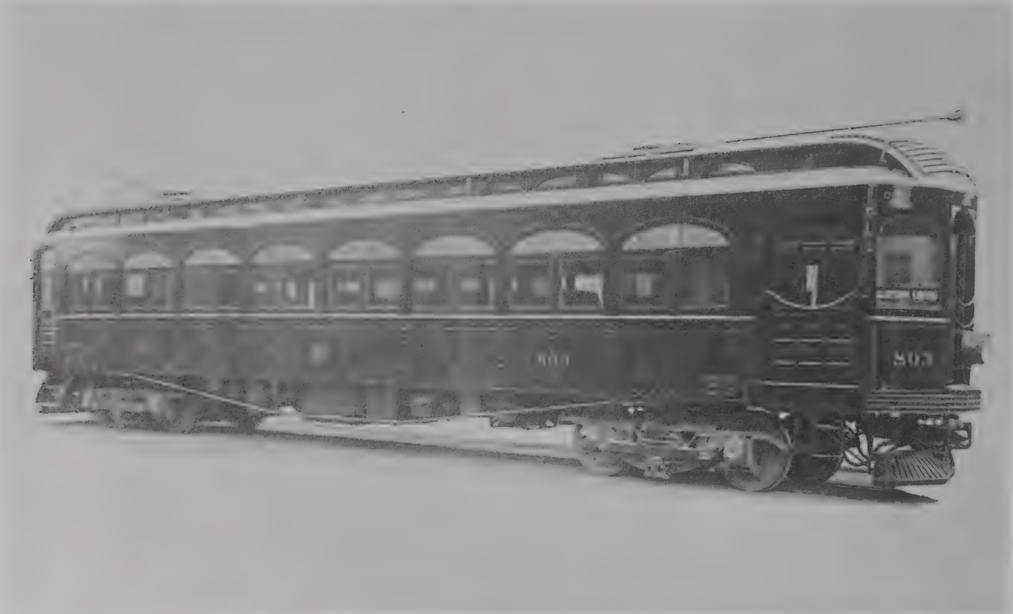
Car bodies Nos. 806 to 811 arrived in Allentown during the first week of July, 1913, and were immediately set on brass journal Brill MCB3X trucks already equipped with third rail accessories. LVT's mechanical staff had recommended the change to the stronger, quieter, and smoother riding Brill product. A higher passenger entrance arch; the proper passenger and trap door opening sequence; Tomlinson couplers; water deflectors above both train doors; conductor's signal cord strung along the left side of the aisle to operate a switch controlling magnet valves and standard Westinghouse cab signal whistles at all control locations; oak roof mats; elimination of metal lined holes for conductor's signal cords for train operation; and a fixed electric marker and classification light system partially imbedded in the curved letterboard near the corner posts were revisions of the original design.

Right of way improvements between Zion Hill and Souderton, the 1910-1912 rehabilitation program's final section, progressed sufficiently to permit initial two-car train operation between 69th Street and Allentown on Saturday, August 30, 1913, to facilitate voluminous Labor Day weekend traffic movements. However, between Sixth and St. John Streets in South Allentown and the Sixth and Hamilton Streets terminus, one mile apart, the cars operated singly. A light weight bridge across the Little Lehigh River, the steep Lehigh Street hill, and the short radius curves at South Sixth and Union Streets and Lehigh and Union Streets barred train operation.

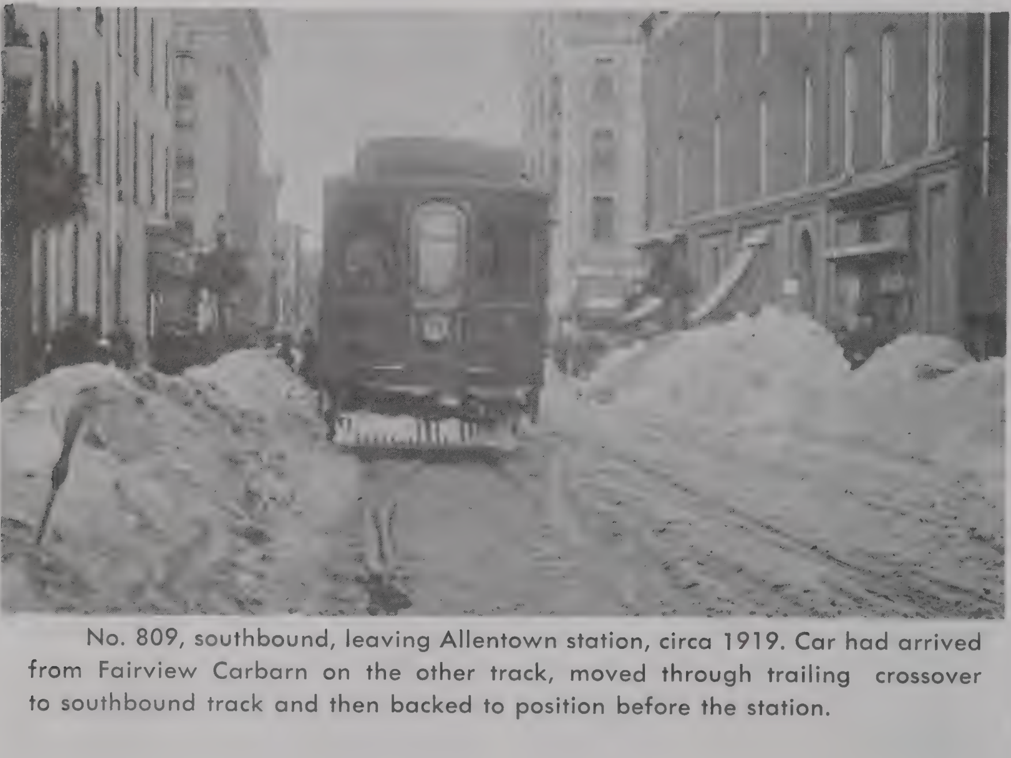
LVT's engineering staff, having adjusted Nos. 806 to 811 plans to correct original design errors, unwittingly created another by adding the fixed marker and classification light system. When 806-811 group cars, in two-car train service, negotiated short radius curves, the protruding lenses and frames brushed each other with disastrous results. Electricians immediately removed the electric signals from each car and carpenters skillfully fastened metal plates over the holes. Adlake oil lamps therafter were set in the sockets which the builder had fastened to the corner posts.

Improved 806-811 group features were incorporated into the 800-805 group to standardize operations and maintenance. Tomlinson couplers replaced the Westinghouse; the conductor's signal system functioned through the train line thus eliminating the need for the metal lined hole above the train doors and connecting the conductor's cords between cars; and plain brass bearings replaced roller bearings on the Baldwin trucks as they became worn, but the trucks themselves were retained.

Two-car trains were operated between Eighth and Hamilton Streets intersection, the new business district terminus in Allentown, and the 69th Street Terminal, after LVT's Eighth Street Bridge was opened from central city area to



No. 803 in 1918. Note trolley wheel on No. 1 end and slide on No.2 end, whistle on roof, and one roller bearing journal and one plain bearing on the front truck.



No. 809, southbound, leaving Allentown station, circa 1919. Car had arrived from Fairview Carbarn on the other track, moved through trailing crossover to southbound track and then backed to position before the station.

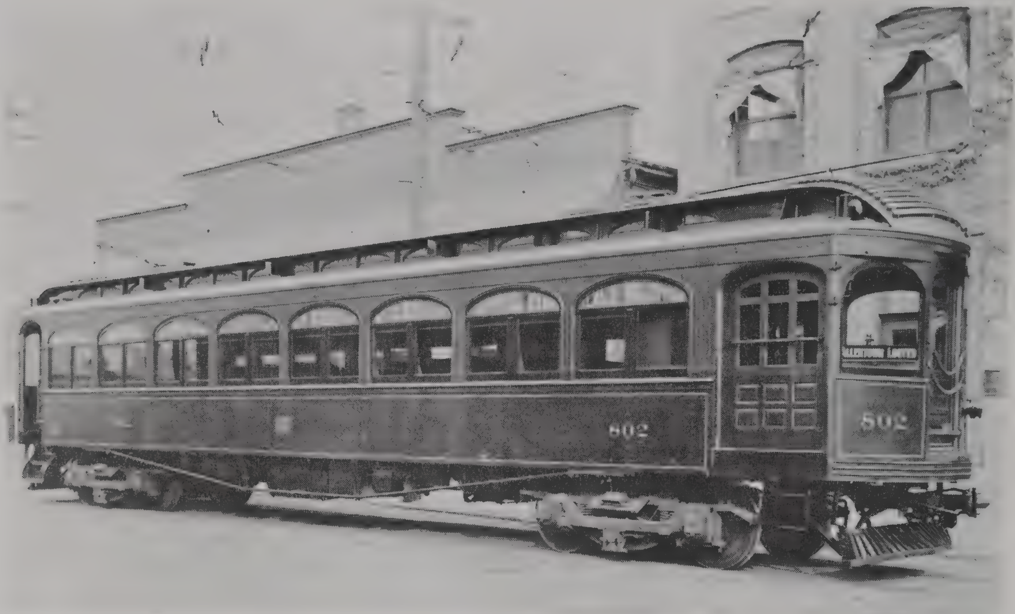
South Allentown on November 18, 1913. The 1,950 foot compound arch reinforced concrete structure, one hundred and thirty-eight feet above the Little Lehigh River, was, at that time, the largest bridge of its type in the world. LVT surveyed, but never built, a direct route from the bridge's southern approach through Salisbury Township to a junction with Philadelphia Division trackage at Summit Lawn on the Lehigh Mountain's crest. A resultant five minute schedule reduction over the contemplated trackage did not warrant expenditure for a second viaduct over the Philadelphia and Reading Railroad and across Trout Creek meadow.

Completion of roadway rehabilitation and the Eighth Street Bridge opening, by early 1914, effected a one way trip schedule reduction from two hours and fifteen minutes to one hour and fifty-eight minutes. Allentown and Philadelphia business districts, including the subway-elevated railway ride from 69th Street, were only two hours and fifteen minutes apart as compared to the four and one-half hour trip, established in 1903, via the old route to Chestnut Hill and the Philadelphia Rapid Transit Company's surface car trip. Undoubtedly, the "Liberty Bell Route" had replaced the steam railroad as the main artery between Allentown and Philadelphia. One business man referred to it as "The Prosperity Trail".

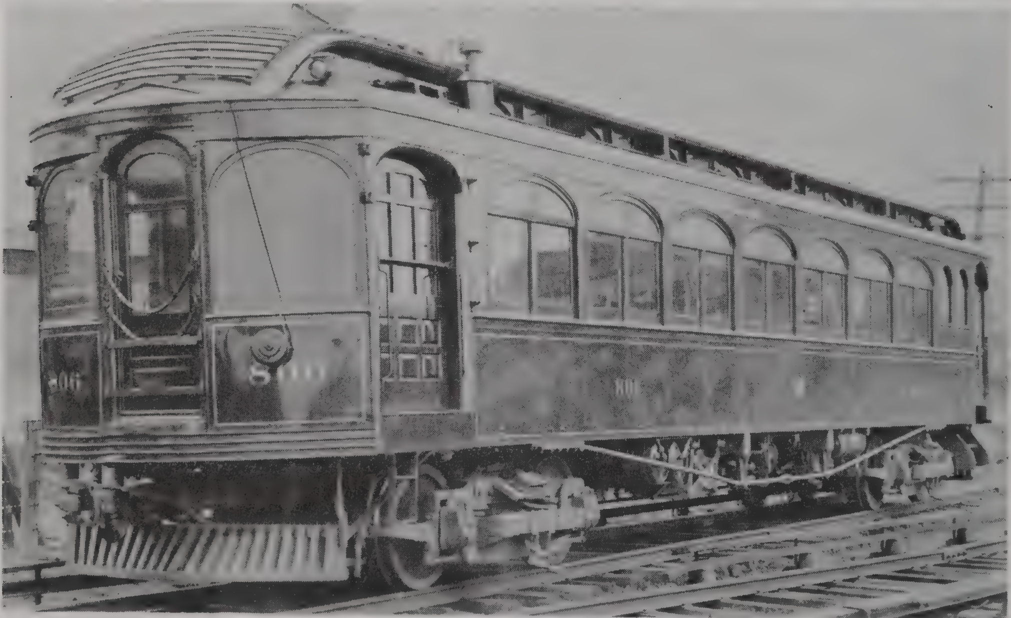
Spacious modern Fairview Carbarn in South Allentown, officially opened on May 18, 1914, established another routine for reversing the 800 series car's operating and passenger entrance positions. During two-man operation, between 1914 and 1932, cars having completed a northbound trip on the northbound track at the Eighth and Hamilton Streets intersection, with the motorman operating the passenger end controls, returned to the carbarn through the trailing crossover, the southbound track on South Eighth Street, and St. John and Lehigh Streets trackage. Inside the yard near the entrance, cars negotiated a loop specially designed for position reversals, and after the crew rearranged both trolley poles and the motorman had moved to the baggage compartment controls, entered the shops for inspection and cleaning. This maneuver properly set cars for southbound trips. Between 1932 and 1938, 700 and 800 series cars and No. 812, as one-man units, followed the same procedure.

Between 1914 and 1923, the southbound trip motorman, at the passenger end controls, operated 800 series cars directly from Fairview Carbarn to the station via the same streets and northbound, instead of southbound, track on South Eighth Street. New trackage construction in 1923 on West Cumberland, South Lumber, St. John, and South Eighth Streets as far as Lehigh Street, created a new route for cars bound for Allentown's business district. Cars bound for the shops used the old trackage. After a paving project prompted Lehigh Street trackage abandonment in 1932 between St. John and West Cumberland Streets, all movements operated over West Cumberland-South Lumber Streets trackage.

Southbound scheduled cars, between 1914 and 1918, arrived on the northbound track in front of the Allentown station, located in the basement, on the southeast corner of Eighth and Hamilton Streets, moved through the trailing crossover to the southbound track and then moved northward on the southbound track to the intersection for passenger loading from the west side of South Eighth Street. After the station moved to the west side of South Eighth Street, in 1918, to



No. 802 at the 14th Street Shop in 1923. Note "bird-house" signal lights, iron protective bar across baggage compartment and disappearance of roller bearing journals from the trucks. Whistle is secluded behind signal light.



No. 806 on P&W track north of the 69th Street Terminal platform, circa 1925. Note plates on letterboard where electric markers had been imbedded.

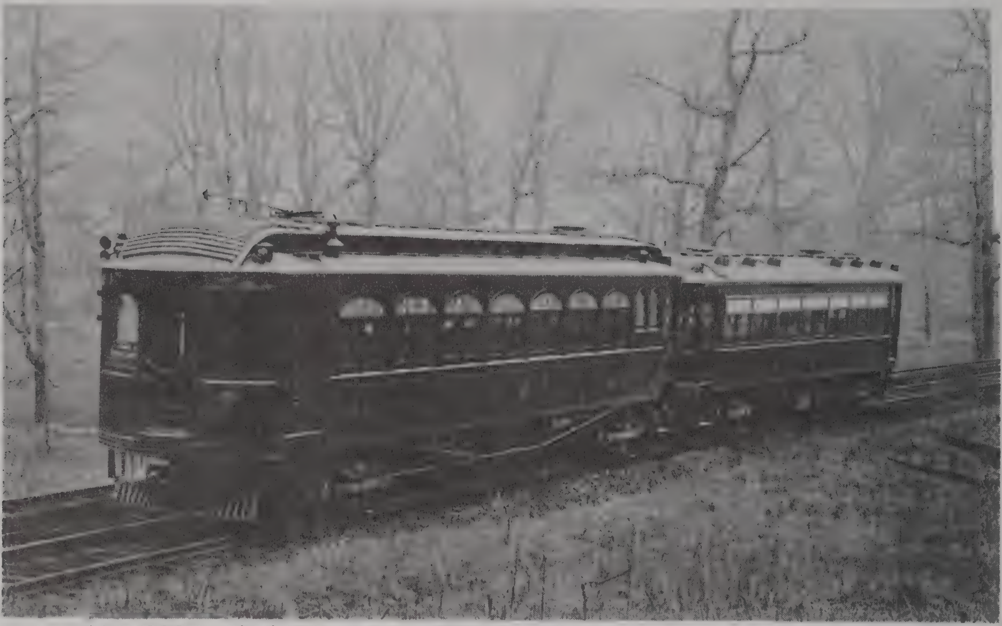
a first floor location seventy-five feet south of Hamilton Street, the same routine prevailed, except that passengers boarded the car in front of the station. Crews changed positions for every phase of these maneuvers.

After careful study and planing, cars Nos. 809, 810, and 811 successfully completed a three-car train round trip test run on July 31, 1914, over the "Liberty Bell Route". Two extra crews accompanied the special movement to operate the cars if it would have been necessary to separate the train. As a result additional sub-stations were installed at Summit Lawn, Quakertown, and Souderton, and thereafter 800 series three-car trains and, effective September, 1916, 800 and 700 series combinations regularly conveyed weekend and holiday passenger traffic until 1935.

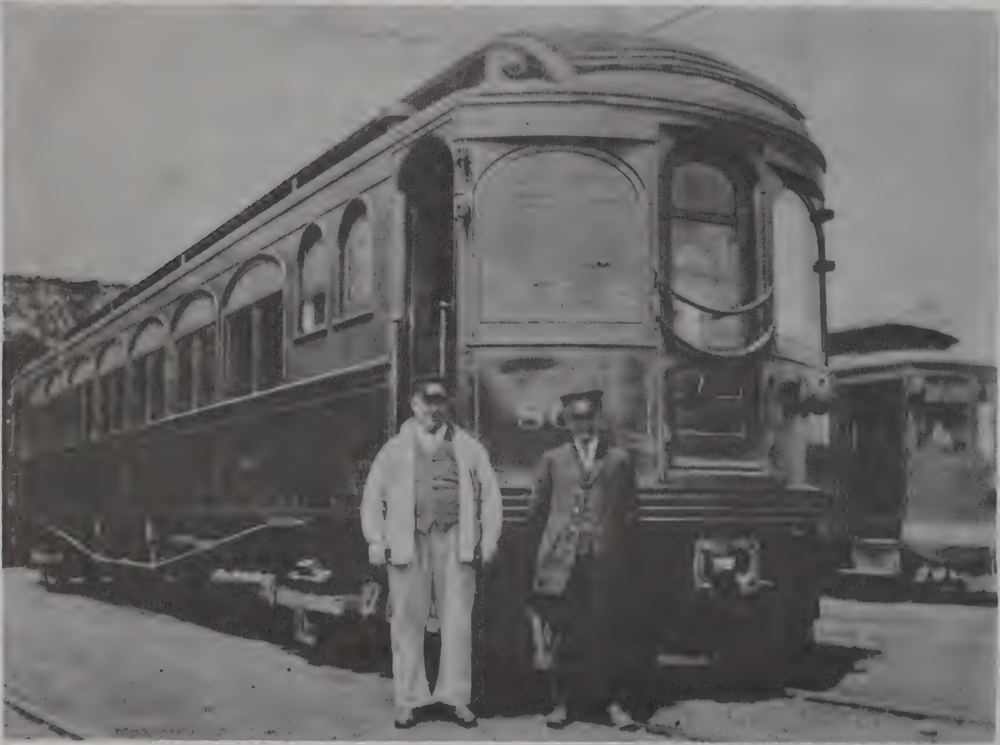
Two-car trains, either completing a northbound trip or preparing for a southbound trip, presented no unusual problem, but for three-car train accommodations, between 1914 and 1923, it was necessary to move the lead car partially around the westbound curve onto Hamilton Street for trailing crossover clearance. A northbound - southbound facing point crossover, installed in 1923, approximately one hundred feet south of the station, eliminated additional movements necessary to place a southbound scheduled car or train before the station. Single cars and two-car trains, having concluded a northbound trip on the northbound track, returned to the carbarn via the trailing crossover and southbound track. After 1923, three-car trains, by operating through the facing point crossover, concluded northbound trips on the southbound track before the station, thus eliminating a partial movement onto Hamilton Street.

LVT established a standard train arrangement policy. During two-man operation, two 800 series cars, between 1913 and 1932, were coupled at the passenger, or No. 2, ends and three-car trains, between 1914 and 1932, were arranged by coupling the third car's passenger end to the baggage, or No. 1, end of the second car in a standard two-car train. Trains were made up in the 69th Street Terminal and at Fairview Carbarn in Allentown before departing for the station on a scheduled southbound trip. If Philadelphia bound traffic was heavy, a second or third car was dispatched from the carbarn and coupled to the regular car or cars at South Eighth and St. John Streets. Two-car trains, having completed a northbound trip and assigned to the next southbound trip, did not operate through Fairview reversal loop, but for three-car trains, in similar circumstances, it was necessary to reverse only the train's lead car as it arrived at the shops and place it as the lead car returning to the station, or third car southbound. After 1916, 700 series cars appeared in limited service either in pairs or as the third car in trains with 800 series cars. Effective with one-man operation in 1932 and continuing until 1951, including mixed multiple car operations of 700's, 800's, and No. 812, the passenger ends of the second and third cars were coupled to the non-passenger end of the preceding car.

A motorman and one conductor were assigned to two-car and three-car trains, except that for three-car train operation a second conductor was added for ticket and fare collection between Allentown and Quakertown. Perturbed employees referred to two-man crew assignments to two cars as the first one-man car operation and to three cars as a two-third-man car operation. Both road officer and conductor, while southbound passengers boarded a two or three-car train in



No. 802 and chair car No. 710, former center entrance interurban local, posed for publicity photograph on the Philadelphia and Western Railway, circa 1926.



Crew, in official attire, ready to leave Fairview Carbarn with No. 801 for Allentown station for southbound trip assignment circa 1926.

Allentown, encouraged those bound for Philadelphia to enter the last car and those for station stops enroute the first or second car. By having passengers grouped in this manner, the conductor could handle all station-stop loadings and departures at one entrance. Limited conductors neither issued nor accepted transfer tickets for or from connecting LVT city or feeder routes.

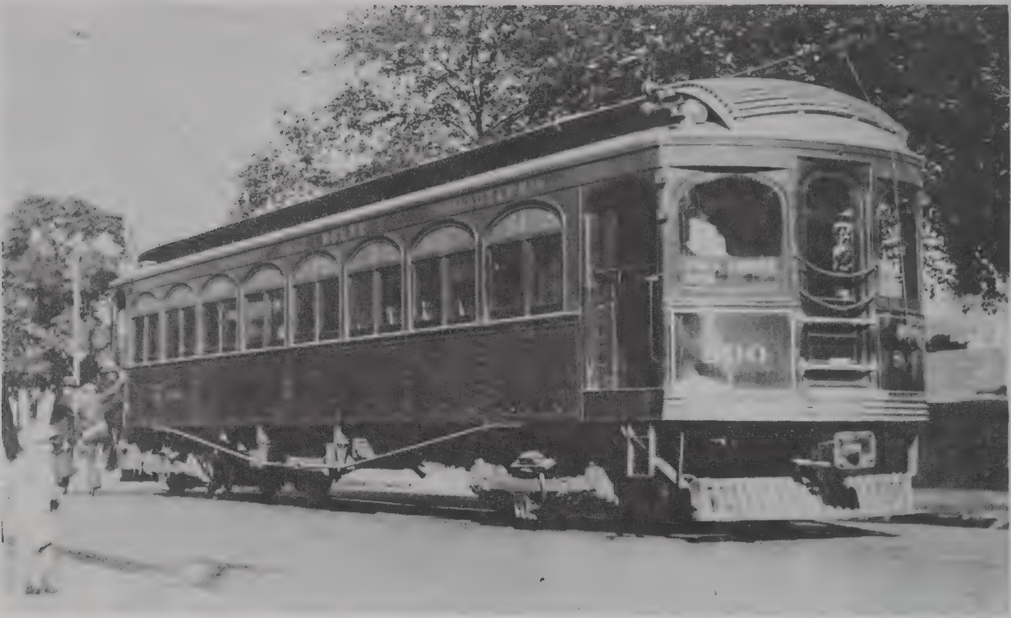
800 series cars were meticulously groomed between trips. Charwomen thoroughly cleaned the interior while shop crews filled the water tank; installed new brake shoes, trolley wheels, or shoes; and examined underside equipment from the inspection pit. From 1914, until they were replaced by the 700's, No. 812, and one-man No. 800 in 1932, the 800 series cars remained under roof between assignments but after that date they were stored in the open yard.

In 1914 all of the Allentown area movie theatres were showing a one thousand foot thirty-five millimeter publicity film "A Honeymoon Trip To Delaware Water Gap". It followed the course of honeymooners from downtown Philadelphia, through the 69th Street Terminal to a resort hotel in the Kittatinny Mountains at Delaware Water Gap, approximately ninety miles north of Philadelphia. The newlyweds boarded an 800 series two-car train in the morning, dined in Allentown at noon, continued their trip via street railways connecting with LVT, and arrived late in the afternoon on Stroudsburg, Water Gap and Portland Traction car No. 5 at the front door of the Kittatinny Hotel on the Delaware River's west bank. Various right of way scenes, the Allentown Fair, and views of Allentown and Lehigh Valley industrial plants were included.

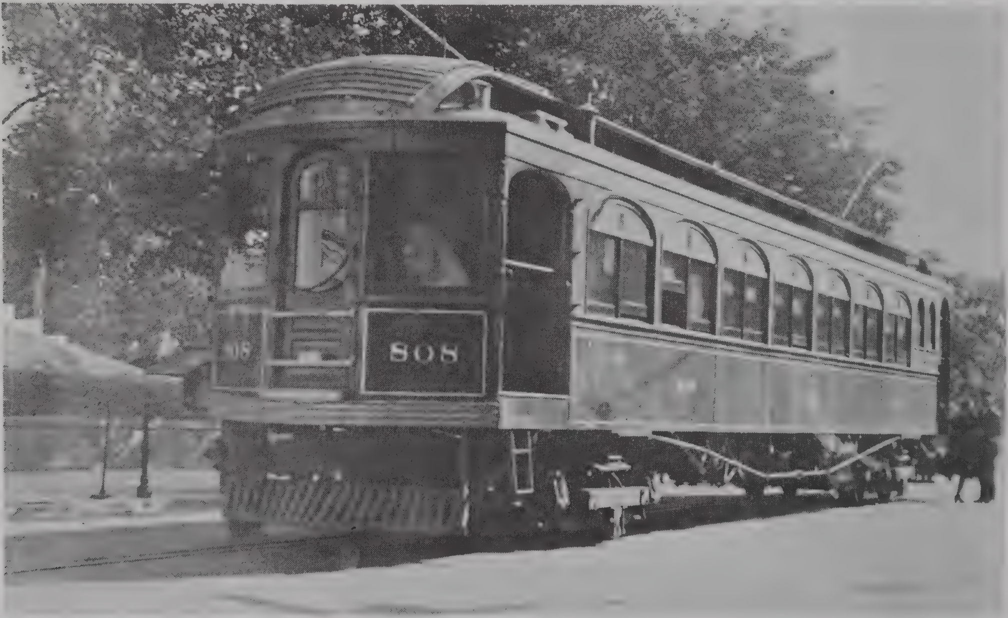
Private interurban car No. 999, a fifty foot wooden body arch roof LVT product equipped with trucks, brakes, controls, third rail equipment, and coupling system identical to those of 800 series cars, rolled from the shops on September 5, 1914, for charter and company business assignments over most routes. For Philadelphia Division movements it was usually coupled to an 800 series car in regular service but elsewhere it operated singly. Unsuccessful as a revenue producer, No. 999 was converted to passenger car No. 812 in July, 1921, appearing, until converted to one-man service in 1932, only occasionally as a single unit in regular service but more often as the second or third car in weekend train service.

Miller trolley shoes, or slides, standard equipment on all 800 series cars after successful experiments on Easton Transit Company's 214 series steel limited cars in 1916, improved current collection, reduced arcing, and eliminated schedule interruptions caused by trolley wheels shattering during maximum speed operation. By January, 1921, all Philadelphia Division local, limited, and freight cars had been similarly equipped.

The trolley wire required a special grease coating to prevent excessive wear after slide installation. For this unusual service, LVT altered and equipped standard semi-convertible passenger car No. 189 with separate air compressors and grease containers. Copper tubing and hose extended from grease receptacles inside the car through the roof and along both poles to within an inch from the ends of the slides. Both poles, one for lubrication and the other for current collection, the forward being turned backwards, were raised for greasing operations. As the car moved slowly over the Philadelphia Division once per month, a lubricant



No. 800, southbound, loading passengers at the Norristown station on Swede Street, circa 1929. Northend of the elevated structure leading to the Schuylkill River viaduct is a short distance southward.



No. 808 northbound at the Norristown street level station circa 1929. LVT crew has already replaced the P&W crew.

mixture was discharged on the wire. In 1937, former Easton Transit Company car No. 211 replaced No. 189, and in 1949 emergency car No. 79 replaced the Easton car.

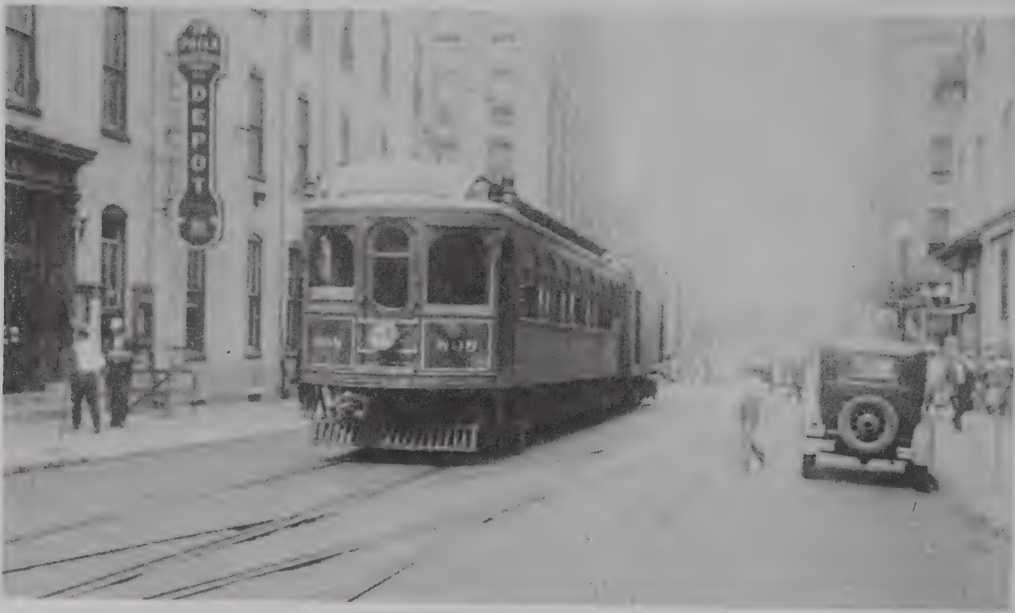
LVT's twelve high speed all steel center entrance local interurban cars Nos. 700 to 711 arrived in August, 1916, for Allentown-Chestnut Hill hourly local service. LVT's management had incorporated into 700 series plans equipment for P&W third rail operation and multiple unit service with 800 series cars. Although the local cars were equipped with WH507 motors and a 25:62 gear ratio in comparison to the limited's WH303A motors and a 22:55 gear ratio, company engineers recommended a two 800 and one 700 series car combination or two 700's for train operation. A train of one 800 and one 700 series car, unusual before chair car service introduction in January, 1923, became standard practice thereafter. Operators expressed varied opinions as to the mixed train function, but no unusual mechanical or electrical difficulties were ever reported. 700 series cars, regularly assigned to the Souderton Carbarn between 1916 and 1931, always replaced 800 series cars disabled between Norristown and Allentown.

By 1918, in addition to replacement of trolley wheels by slides, Ohio Brass Company retrievers replaced Earll; a motorman's train order clip board was placed near the No. 1 end controls; the forward whistle was moved from above the motorman's window to a lengthwise position across the roof mat over the baggage compartment; incandescent lamps replaced the arcs in the head lights; and train line sockets were moved from the corners to the coupler body of all 800's.

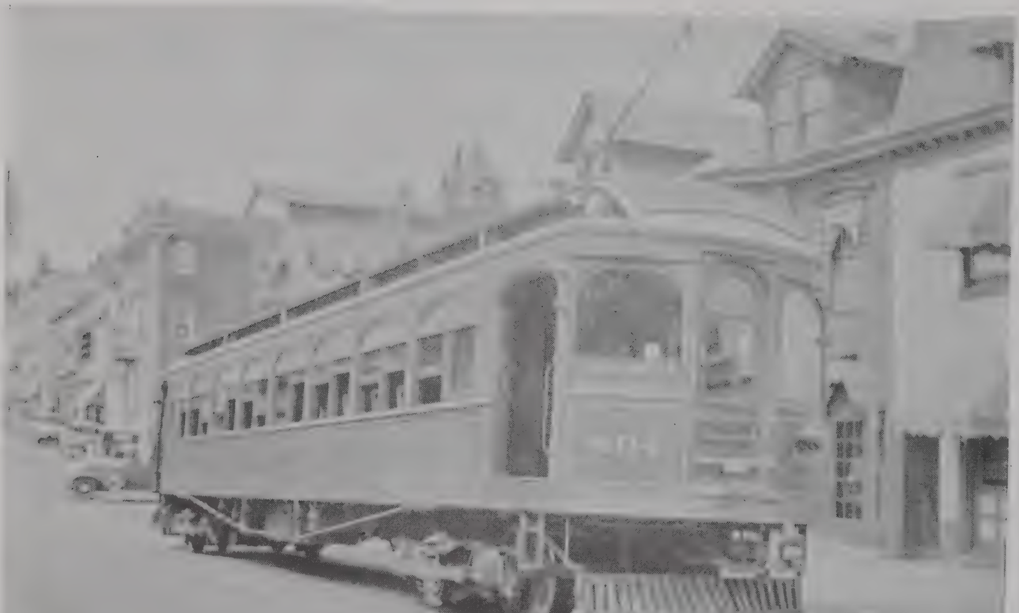
Lehigh Power Securites Corporation, a National Power and Light Company subsidiary, acquired control of the Lehigh Valley Transit Company on July 19, 1917, and, pursuant to the national organization's policy, procured Electric Bond and Share Company's managerial service. During autumn of 1917, Ebasco began changing LVT's chrome green body and chrome yellow roof colors, adopted in 1907, to a bright red body and tan roof. Other colors were retained. The change was effected gradually; the first 800 series car being painted early in 1918.

In 1918 LVT sent an inquiry to the Jewett Car Company concerning the building of four all-coach cars, having four passenger entrances and overall dimensions identical to Nos. 800 to 811, to operate a proposed high speed double track system, formulated in 1915 by LVT President H. E. Fehr, between Easton and Bethlehem and a junction with the "Liberty Bell Route" at Center Valley. LVT, having gained control of the Easton Transit Company in 1913, purchased additional land paralleling existing trackage between Easton and Bethlehem but never acquired any for the Bethlehem-Center Valley route over Lehigh, or South, Mountain. Double tracking from Wilson Borough reached its fartherest western extremity at Taylor Wharton Manufacturing Company property on April 19, 1917, but by 1919 the entire project had been cancelled.

A P&W passenger car operated over LVT trackage from Norristown's northern boundary to Brush Siding for the only known occasion on September 18, 1919, when car No. 801, lacking air pressure, could not maintain its southbound schedule. LVT and P&W dispatchers arranged a two-car movement to the 69th Street Terminal. Norristown Transit Company, a separate organization owned jointly by LVT and



No. 808 and freight car No. C11, southbound, before the Allentown station on South Eighth Street, circa 1930. Note northbound-southbound trailing switch in foreground.



Southbound scheduled No. 804, arriving from Fairview Carbarn at the South Eighth and Walnut streets intersection, circa 1931. Car will operate through facing point crossover at crest of slight rise in the background.

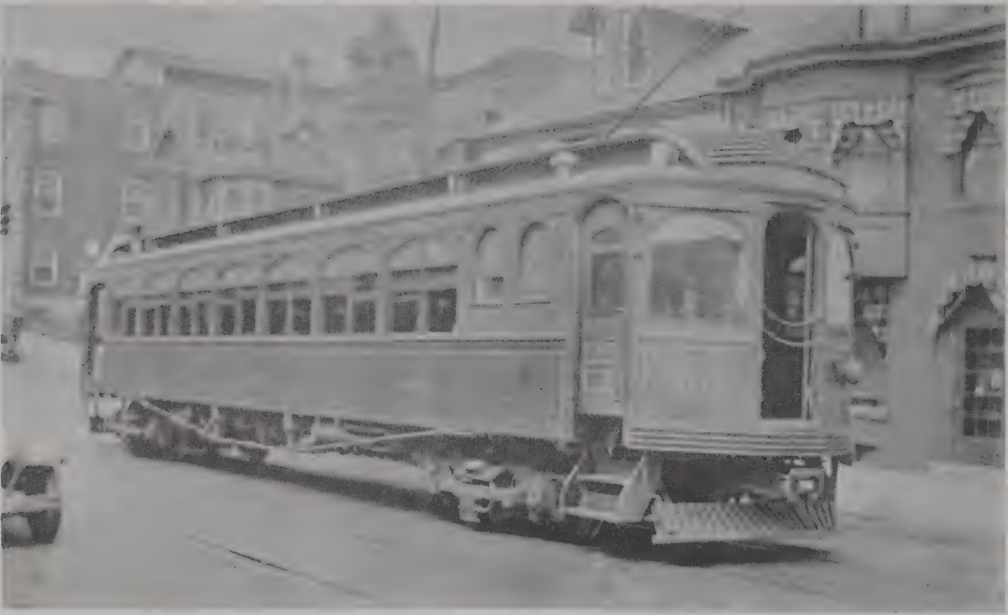
P&W, owned the trackage within Norristown Borough from the elevated structure entrance to the northern boundary.

Ebasco management carefully reviewed all developments which national electric interurban authorities deemed vital to an efficient revenue-producing railway system. LVT's master mechanic and his staff usually received appropriations to investigate these new ideas as well as their own suggestions and to recommend worthy policy changes. Most notable adjustments involving 800 series cars were plows attached to several cars during winter months to roll back drifting snow along rural right of way; electric signal lights built into the roof; an air horn warning system; and chair car service.

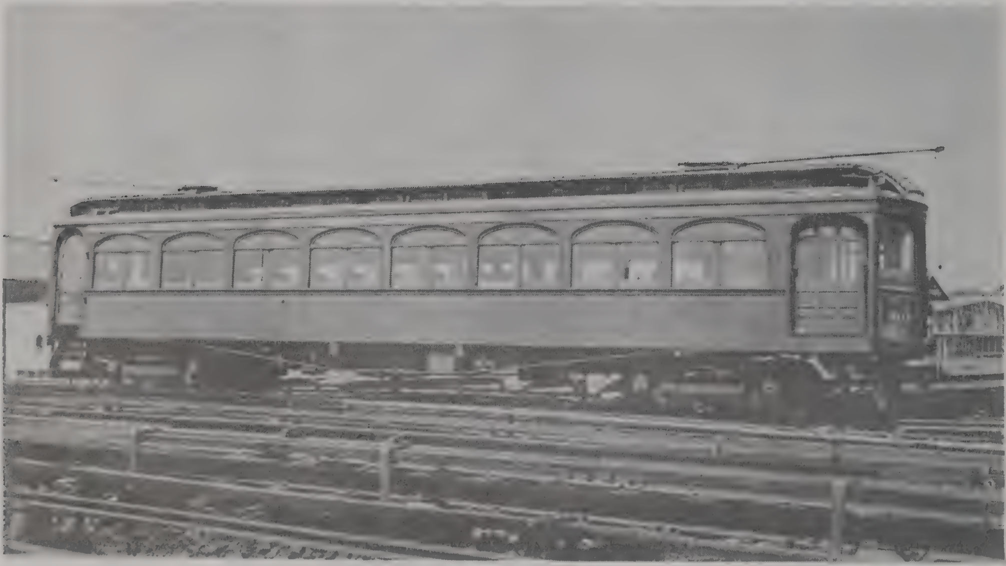
Effective January, 1923, for an extra fifty cent fare, later reduced to twenty-five cents, above the $1.66 one way or $3.00 round trip fares, the "Liberty Bell Route" offered chair car accommodations to its patrons. Local center entrance interurbans Nos. 703, 706, and 710, converted in LVT shops to a straight side end entrance type, were coupled to 800 series cars for daily except Sunday trips of "The Philadelphian" leaving Allentown at 8:00 a.m. and 4:00 p.m., "The Allentonian" leaving the 69th Street Terminal at 8:57 a.m. and 3:57 p.m., and, for Philadelphia theatre season patrons, the Wednesday and Saturday only "The Midnighter" leaving 69th Street at 12:15 a.m. Thirteen wicker chairs, later replaced by plush upholstered revolving chairs, with LVT monogrammed head cloths, eight in the coach section and five in the smoker, or observation compartment, comprised the seating capacity. Passengers entered the chair car from the 800 series car's platform through the train doors and the P&W platform stepping board bridging the short gap over the anti-climbers between cars.

On September 2, 1925, LVT opened the Brick Tavern-Center Valley track relocation, moved westward from the highway to private right of way, the Philadelphia Division's last major revision. Operating schedules were reduced three minutes to one hour and fifty-five minutes, the fastest schedule ever maintained by 800 series cars.

Beginning in 1912, standard whistle signals were required at all grade crossings. Oil from the ten inch whistle's air line, above the motorman's window, coated the adjacent area and collected unsightly dirt. This condition was eliminated in 1914 by placing the forward end whistle, by means of short pieces of pipe and elbows, lengthwise across the roof mat. In 1918, after considerable experiments with various whistles, including a very large bodied locomotive chime surrounded by a large metal horn on No. 803, a ten inch whistle, a five inch chime, and a reflection shield were placed on the clerestory wall between the upper and lower roof of all 800's. Thus pocketed, the dirt and much of the sound were not apparent. By the middle 1920's, mile-a-minute operation, improved public roads, and the increasing number of closed automobiles combined to cause serious crossing accidents, many fatal to the automobile occupants, between Allentown and Norristown. Following the trial of a single air horn, LVT replaced the discordant two- whistle warning combination with loud blaring twin Strombos air horns, the first being applied to No. 807 on November 2, 1927. However, the far carrying distinctive warning, signs, flashing lights, ringing bells, and swinging arms did not halt the seemingly suicidal tendencies of



No. 803, northbound, within one city block of Allentown station, circa 1931.



No. 808 on June 8, 1933, in the 69th Street Terminal spur reserved for LVT cars. Note deterioration of 1928 painting.

motorists.

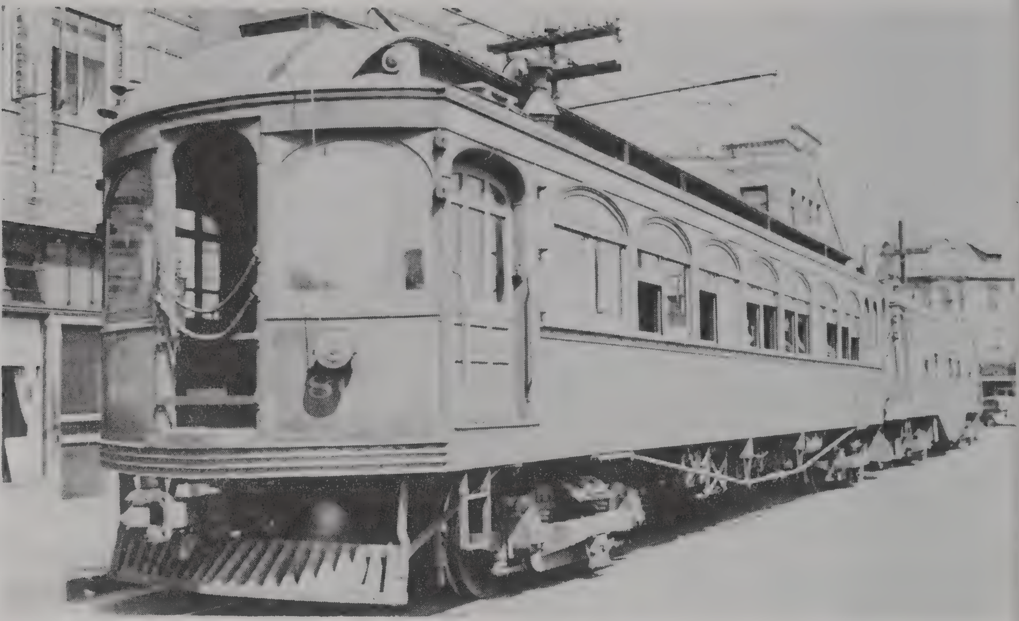
LVT sponsored Delaware Bay excursions were popular and profitable during the late 1920's. An 800 series car or two-car train, having deadheaded to Easton at 4:00 a.m., departed from the circle at 5:00 a.m. to become the regular 6:00 a.m. trip leaving Allentown. LVT arranged the cars or trains according to patronage. Three three-car trains, including combinations of 800's and 700's, and an 800 series two-car train, conveyed the largest group ever to attend a special excursion. Park benches placed in the baggage compartments of the second or third 800 series cars in a train provided additional seating capacity. Market Street subway-elevated cars transported the group from 69th Street to 2nd and Market Streets in Philadelphia close to the wharf from which the steamboat, usually the **S. S. John Cadwalader,** sailed for a non-stop return cruise in the Delaware River and bay. Later, excursions docked at Riverview Beach, New Jersey, where excursionists enjoyed picnic and amusement facilities. Special trains, not necessarily arranged the same as in the morning, conveyed weary participants from 69th Street to Allentown and Easton in the evening.

These excursion assignments to Easton via Bethlehem represented the few instances that 800 series cars, except for Allentown street trackage operations, left the Philadelphia Division. Their bulkiness and overall length prohibited use on trackage planned for smaller cars. Charter service patrons northward from Philadelphia were usually transferred to city or suburban cars for transportation beyond Allentown.

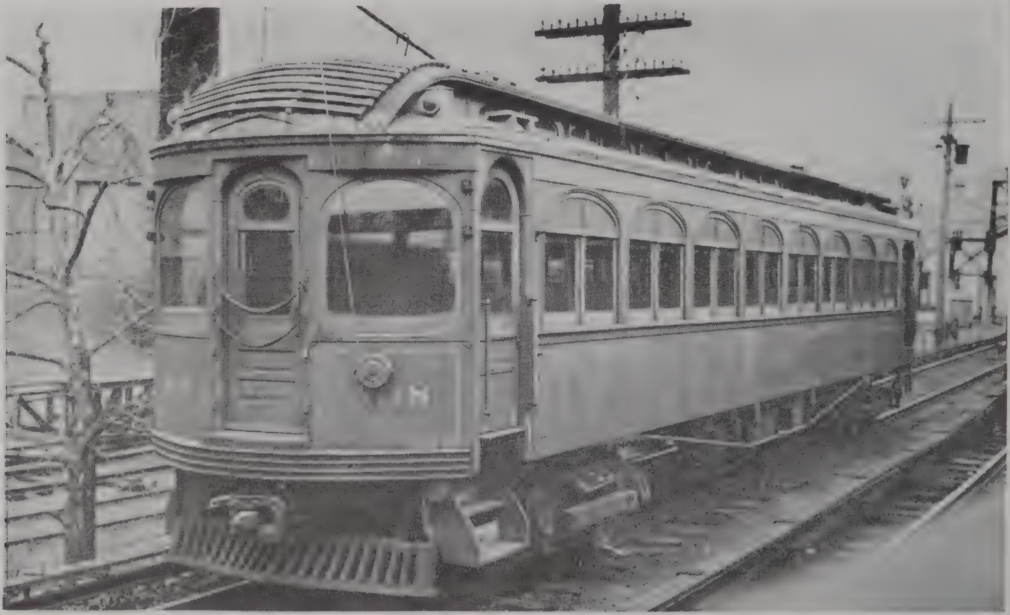
A modified 800 series car paint scheme was introduced in 1928. A dark red varnished body; silver striping, large numbers, monogram, anticlimbers, head light, and roof replaced the bright red, gold, tan, and black combination adopted in 1917. In addition, "Allentown, Liberty Bell Route, Philadelphia", in large silver letters, cluttered the letterboard above the side windows. This was the last paint applied to Nos. 801, 802, 804, 808, 810, and 811. Previously, from 1912 until 1918, the words "Philadelphia, Allentown, and Water Gap" appeared in small letters on the lower portion of the body at the baggage entrance and "Liberty Bell Route" at the passenger entrance; from 1918 until 1923 "Liberty Bell Route" at the baggage entrance and "Philadelphia, Norristown, Allentown, Bethlehem, and Easton" at the passenger entrance; and from 1923 until 1928 only "Liberty Bell Route" at the passenger entrance.

Movement of empty freight cars from Allentown to the Upper Darby freight terminal in trains with 800 series cars operating regular passenger schedules, a convenience plan begun in the fall of 1927, became standard practice in 1928 for economic reasons and continued throughout 700 series car operation until the 1000 series single unit interurban's introduction in February, 1939. Loaded freight cars, either single units or trains, usually returned to Allentown before six o'clock of the following morning. It was not uncommon for P&W to operate LVT freight cars in four-car trains from 72nd Street to the Norristown station, and occasionally to Marshall Siding, but LVT split the train into two two-car trains for movement from that point to Allentown.

A third rail equipment short circuit set ablaze and destroyed car No. 811 on September 1, 1929, near P&W's Villanova Junction, thereby reducing the 800 series from twelve to eleven cars. The



No. 809 as the second car in a northbound train with No. 711 at the Lansdale station on July 4, 1936. Train is arranged properly for one-man operation.



No. 808, on December 24, 1934, at the 69th Street Terminal for the Christmas rush. Several weeks later it was shopped for conversion to freight car No. C15.

scorched steel roofless skeleton set on trucks in Fairview yard until the 1935 scrapping program.

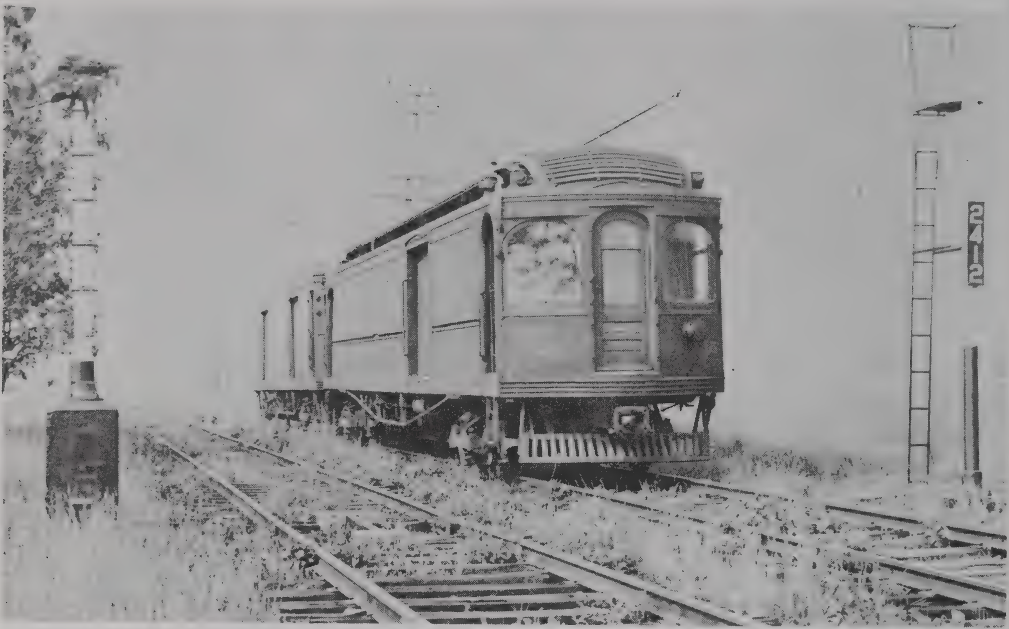
LVT and many other interurban systems throughout the United States, suffering financial setbacks in the late 1920's and early 1930's, passed from the "golden years" into a declining era. Widespread unemployment and competition from privately owned automobiles diminished revenues and, in many instances, caused failure. Although financially weakened, fortunate systems continued operations but lowered their operating costs by replacing heavy power consuming interurban cars with light weight rapid accelerating types designed for one-man operation. LVT, following the trend, established one-man operation for Philadelphia Division local cars only effective January 25, 1931. St. Louis built 137 and 172 series local cars replaced the seven remaining two-man center entrance 700 series cars assigned to Allentown-Norristown local schedules after Wales Junction-Chestnut Hill trackage abandonment on July 31, 1926.

In 1931, LVT, definitely planning the elimination of 800 series cars, converted chair cars Nos. 703 and 710, already partially revised, and center entrance locals Nos. 702 and 704 into "Deluxe Limiteds." Removal of center entrance structural beams and plates, coal heater, interior partitions, and doors reduced their weight from thirty-five to thirty-three net tons, or eight tons lighter than an 800 series car, and the addition of motor field taps increased their maximum speed to seventy miles per hour, or approximately ten m.p.h. faster than an 800 series car. Deluxe interior improvements included a left hand control operating position, double high back stationary leather seats, wall bracket lighting, electric heating, curtain draped side windows, a new ceiling and roof ventilator system, and an observation lounge outfitted with individual chairs, sofa, card table, and table lights. Chair car No. 706, converted to a parlor car with rows of revolving chairs formerly in the chair cars, replaced deluxe cars in emergencies.

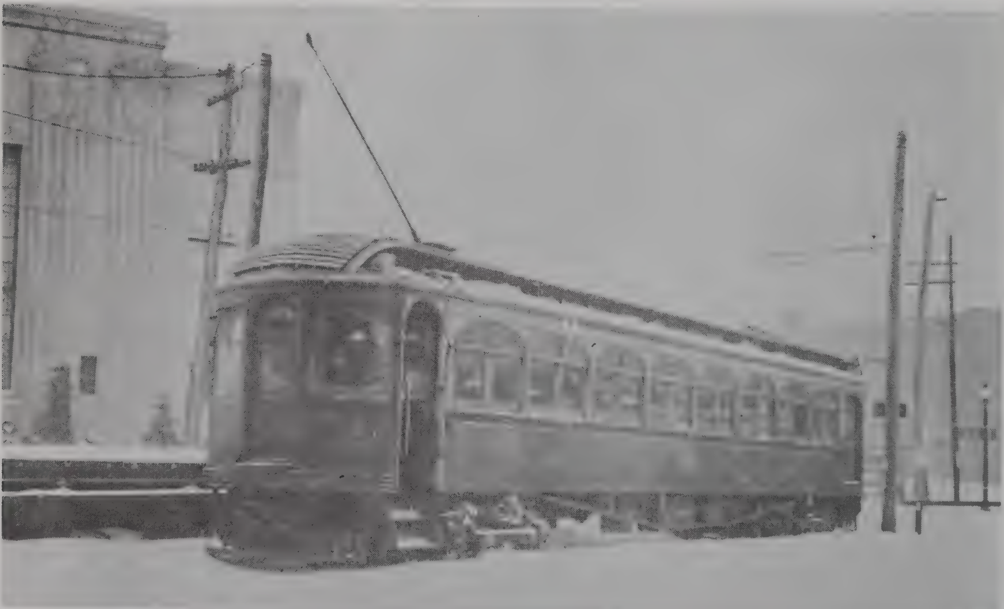
One hundred percent 800 series car operation ended on Sunday, April 26, 1931. After almost eighteen years of steady assignments to "Liberty Bell Route" regular schedules, the large interurbans and chair car service were replaced by the "Deluxe Limited" operating a fast one hour and forty minute schedule, listing only seven station stops, on 8:00 a.m. and 4:00 p.m. southbound and 8:57 a.m. and 3:57 p.m. northbound trips. Although 800 series cars operated all other schedules, LVT publicity extolled the "Deluxe Flyer" performance. Two men comprised the deluxe car crew, but the car's air operated front doors and traps and absence of side rear doors revealed a ready adaptation to one-man operation.

LVT's decision to cancel plans for one hundred percent deluxe car operation in the autumn of 1931 prolonged the 800 series cars' existence. Cars Nos. 707 and 708, stripped for revision, were towed from the carpenter shop to a nearby storage yard. During the 1938-1940 modernization program their rusted bodies and trucks, as scrap, commanded a trade-in value for purchasing lighter modern, but second-hand, interurbans.

Car No. 810 was withdrawn from service after a crossing collision with an automobile in Hatfield on January 27, 1932. Derailed by wreckage on the rails, the speeding interurban hurtled down the right of way ploughing up trackage and severing two service poles before



Freight car No. C15, ex No. 808, and No. C6, southbound, in Nace Siding north of Soudertown on May 23, 1939, awaiting meet with northbound passenger car.



No. 809, northbound, during January, 1936, snowstorm, in Souderton freight spur awaiting off-schedule meet with the southbound limited.

halting. LVT, having ten 800 series cars, No. 812, four deluxe cars, and one parlor car available for regular service and five center entrance locals for train service, placed smashed No. 810 on the Fairview yard storage track in front of firegutted No. 811.

One-man operation finally replaced the two-man crew on August 1, 1932, and simultaneously 800 series cars were withdrawn, except in emergencies, from regular schedule assignments. Surprisingly, deluxe service ended at the same time. Short trips from Allentown to nearby communities, Norristown area service, and morning and evening rush hour extras between Allentown and Souderton and Souderton and Norristown replaced Allentown-Norristown hourly local service. Allentown-Philadelphia cars served all other local stops not served by the curtailed local service. During one-man service, 800 series cars carried "Allentown Express" or "Phila. Express" destination signs in the lower window section in front of the No. 2 end controls. By this time all 800 series cars' interior lighting was supplied from line voltage.

A motley group of interurban cars maintained Philadelphia Division limited schedules between 1932 and 1939. Former "Deluxe Limiteds" Nos. 702, 703, 704, and 710; No. 706, former parlor car converted to coach; Nos. 700, 701, and 711, converted to one-man service by enclosing center entrance door wells and steps with steel plates and pairs of windows and creating passenger entrances with steps and air operated doors and traps on both sides of the operating end; and No. 812, equipped with air operated passenger entrance doors and traps for one-man service, indiscriminately appeared on regular scheduled assignments. Cars Nos. 800 to 809, between 1932 and 1936, appeared occasionally, with the operator at the No. 2 end controls, in regular service but their assignments in train service behind the 700's or No. 812 were more frequent. Two 800 series cars remained in the 69th Street Terminal storage spur and another at the Souderton Carbarn for emergency service.

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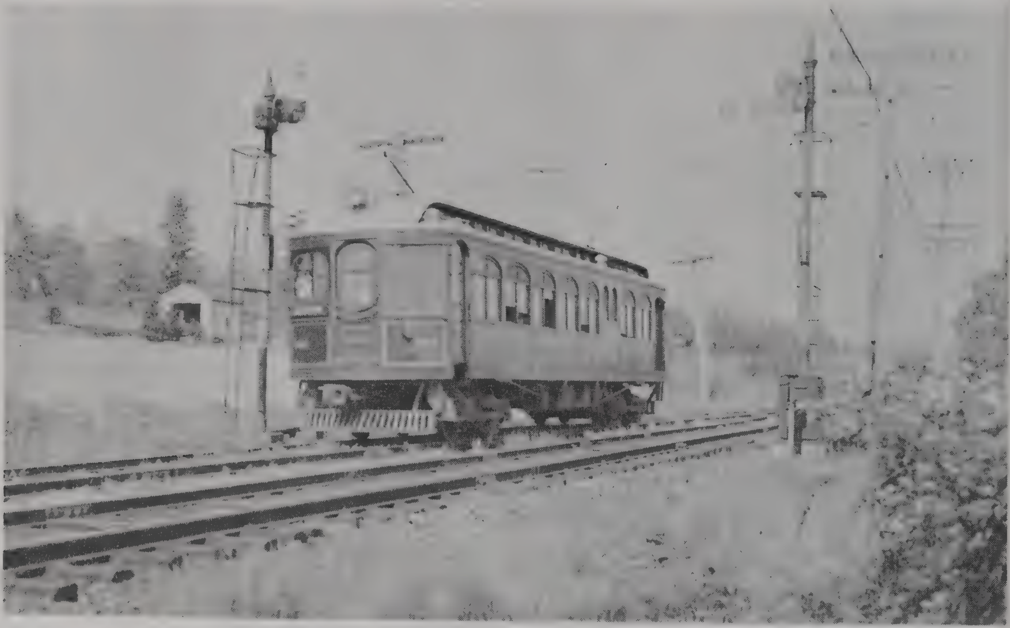
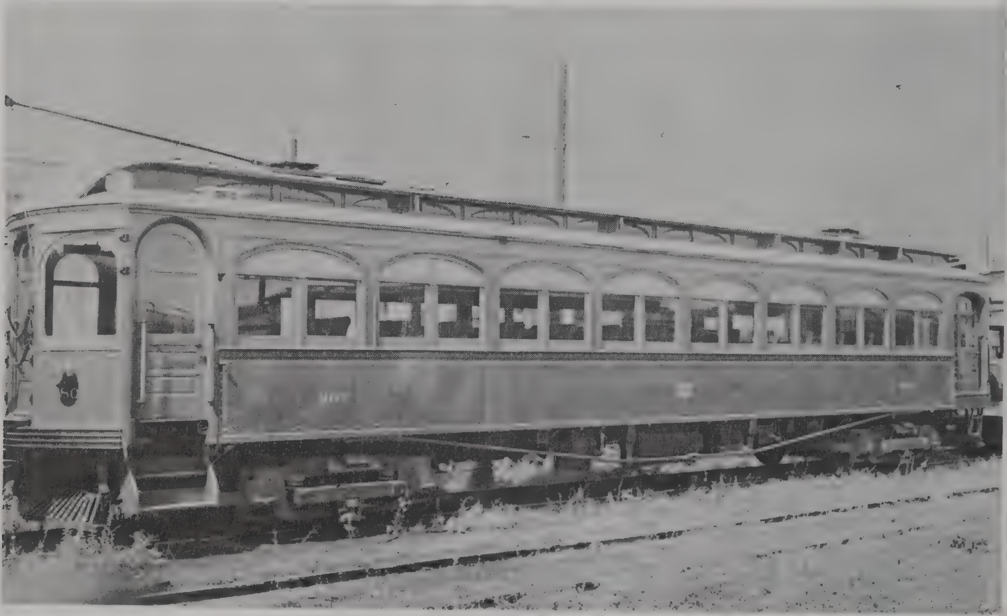
800 series cars, lacking air operated doors and traps and fast accelerating motors, were disfavored by operators for one-man regular schedule operations. Numerous stops, some only a few hundred feet apart, caused the movement to lag behind schedule time. Passengers seated in the rear smoking compartment complained that the operator's station announcements were barely audible.

Permanent retirement of cars Nos. 801 and 804 in 1933, a maintenance reduction measure, left eight 800 series cars in operating condition, but they were not maintained in the same traditional LVT manner as the 700 series and No. 812 had been following their assignment to regular service.

LVT replaced freight car No. C13, derailed by a broken axle and wrecked plunging down the Lehigh Mountain's southern slope right of way embankment on October 10, 1934, by converting car No. 802 to freight car No. C14, later renumbered No. C19, during late 1934 and early 1935. In the summer of 1935, LVT replaced small capacity wooden body freight car No. C3, lacking multiple unit control, by converting No. 808 to No. C15, identical to No. C14. Renovations included removal of passenger entrance steps and trap doors to create a car-wide platform; addition of stirrup steps at the former passenger entrance; removal of seats, lavatory, side lights, and



No. 800, shortly after conversion to one-man type, southbound at the north-end of School Siding in Center Valley on May 9, 1936.



No. 809 at Fairview Carbarn on August 23, 1936, shortly after leaving paint shop. Note striped body.

smoking compartment partition; installation of a wide doorway, with a steel sliding door, on both sides in sections cut through body plates and window framework near the passenger end; removal of window panes, sashes, and cathedral arch windows; and sheathing the outside window section with steel plates and lining the interior sides with planks. Brill trucks replaced the original Baldwin trucks under No. 802 during conversion to No. C14. These conversions reduced the 800 series operating roster to six cars.

The 1934-1935 scrapping program eliminated excess city and suburban cars idled by 1931-1933 trackage abandonments to Slatington, Nazareth, Egypt, Emaus, and Macungie; and No. 811. Retired cars Nos. 801, 804, and 810, slowly deteriorating, remained.

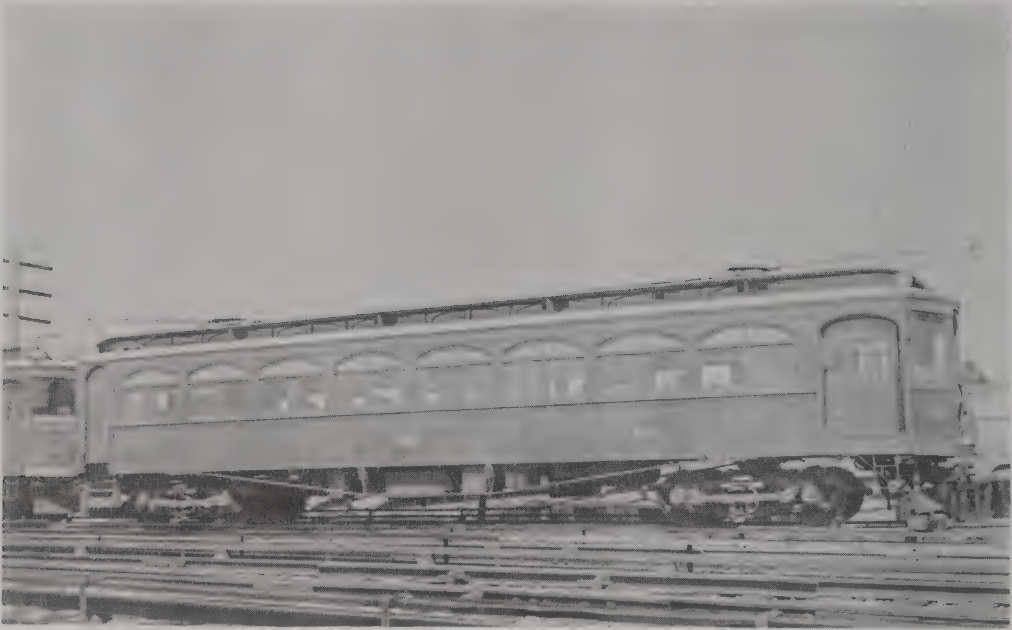
Cars Nos. 805, 806, and 807, the last 800 series three-car train over the "Liberty Bell Route", leaving the 69th Street Terminal before midnight, March 23, and arriving in Allentown early in the morning, March 24, 1935, carried home jubilant students and partisans after Allentown High School's basketball team had defeated Rankin High School for the Pennsylvania scholastic championship in a contest played on University of Pennsylvania's Palestra court in Philadelphia.

A fire, similar to that which destroyed car No. 811, reduced former "Deluxe Limited" No. 703 to a scorched steel shell near P&W's King Manor station on November 18, 1935. Rather than revise one of the four remaining unconverted 700 series cars, a costly and complex project, LVT chose the more economical task, the conversion of No. 800 to a one-man type. Alterations included lavatory relocation from the left side's eighth pair of windows to the right side's second pair; removal of passenger vestibule and smoking compartment partitions; converting the passenger end to the operating end by installing air operated traps and doors; permanently fastening a headlight on the roof above the train door of the operating, or No. 2 end; installing a destination sign box in the lower portion of the right front window, and moving the third rail-trolley changeover switch and air horns from the No. 1 end to the No. 2 end. In February, 1936, car No. 800, painted dark red with small silver numbers, striping, monogram, anti-climbers, headlight, and roof and a protective varnish body covering, assumed regular car status.

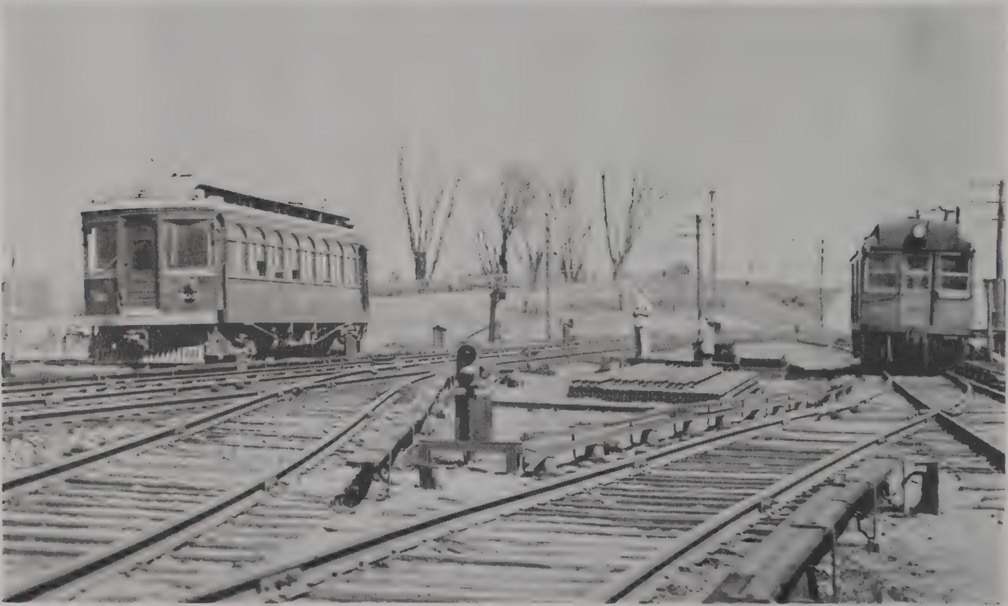
Cars Nos. 803, 805, and 807 operated from the Souderton Carbarn during the summer and early autumn months in 1936 to transport, under contract with the federal Works Progress Administration, workers from Norristown to a government project near Telford. Philadelphia Division local crews manned the cars, usually a two-car train, for the daily routine which included deadheading from Souderton to Norristown in the morning, conveying the workers from Norristown to the Telford station, storing the cars in Nace Siding between Souderton and Telford until late afternoon, conveying the workers from Telford to Norristown, and deadheading back to the Souderton Carbarn in the evening.

At this time an LVT official, speaking to employees attending a safety meeting, revealed LVT's imminent intentions to convert from trolley to bus operations. Continuing, he predicted, within twenty years, the elimination of street cars from all areas except the major cities.

A moderate business upswing in 1936 and early 1937 motivated



No. 806 in the 69th Street Terminal spur on April 11, 1937. Note flat paint and unstriped body.



Northbound from the 69th Street Terminal on May 3, 1937, No. 805, operated from passenger end, passes reversal wye and P&W shops.

LVT to rehabilitate their five operating unconverted 800 series cars to accommodate increased patronage. Car No. 809, minus the smoker partition, painted dark red; varnished; gold striping, monogram, and small numbers; black anticlimbers and headlight; and a silver roof minus roof mats became the favored spare car. Cars Nos. 803, 805, 806, and 807, almost devoid of the paint applied in 1928, received a flat dark red body painting; a silver roof, small numbers, headlight, monogram, and anticlimbers, but no striping. During the next three, or final, years, at least one 800 series car, including the one-man No. 800, appeared daily as a "Liberty Bell Route" regular or spare assignee.

A Pennsylvania Utility Commission edict on July 7, 1937, ordered LVT to attach dead-man safety devices to the controls of Philadelphia Division interurbans, freight, and local cars. This was accomplished by the typical ingenuity of master mechanic William Klein. An air piston, placed near the brake valve, which when extended moved an extension added to the brake handle to force the valve to emergency position. Sand application operated at the same time. A second piston forced the control reset switch to "off" position. Only full service brake application or depressing a foot pedal prevented air pressure from actuating the two pistons. Car No. 800, having regular car status, was so equipped.

Acceding to Allentown council's request in 1938 to void southward movements through the trailing crossover opposing automobile traffic on South Eighth Street, LVT routed limiteds, having completed a northbound trip, back to the shops over the Union Street loop via Hamilton, South Sixth, and Union Streets to the north end of the Eighth Street Bridge, thereby automatically reversing positions for the next southbound trip. Fairview reversal loop, however, remained intact primarily for shop work convenience. The customary northward movement of southbound scheduled cars through the facing point crossover for placement before the station remained unchanged.

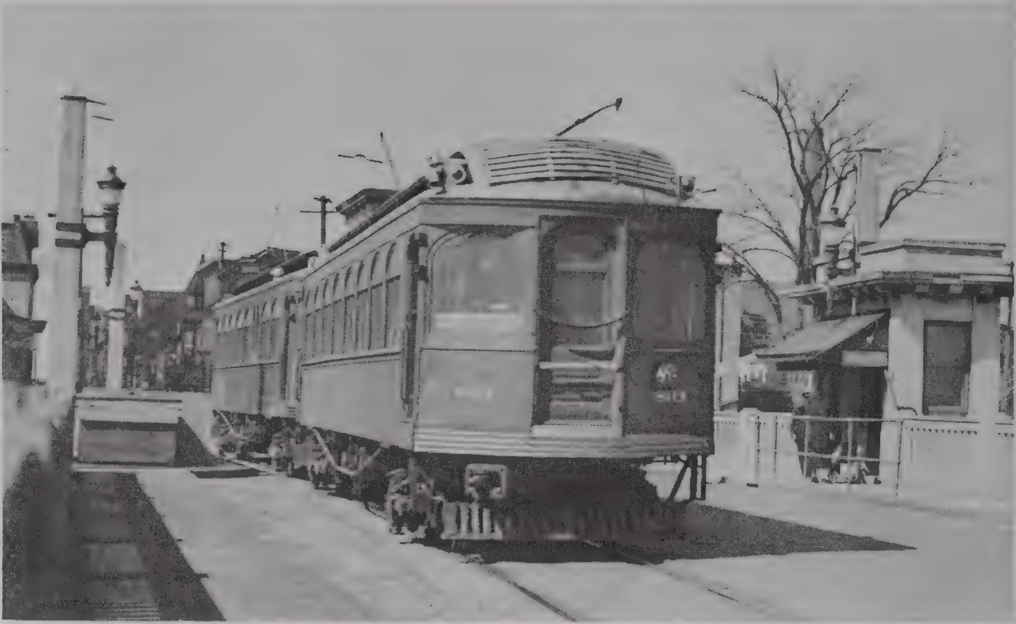
A staff of engineers, appointed in 1938 by the Electric Bond and Share Company to study relative merits of rail versus bus equipment for the Lehigh Valley Transit Company, recommended the retention of all rail lines, except Easton city routes, rehabilitation of newer light weight cars, and acquisition of used, but modern, light weight equipment to replace the older and heavier 137, 172, 600, some 700, and all 800 series cars.

In September, 1938, two of the thirteen former Cincinnati and Lake Erie Railroad interurbans, destined to be LVT's 1000 and 1020 series "Liberty Bell Limiteds", arrived in Allentown for revisions and alterations.

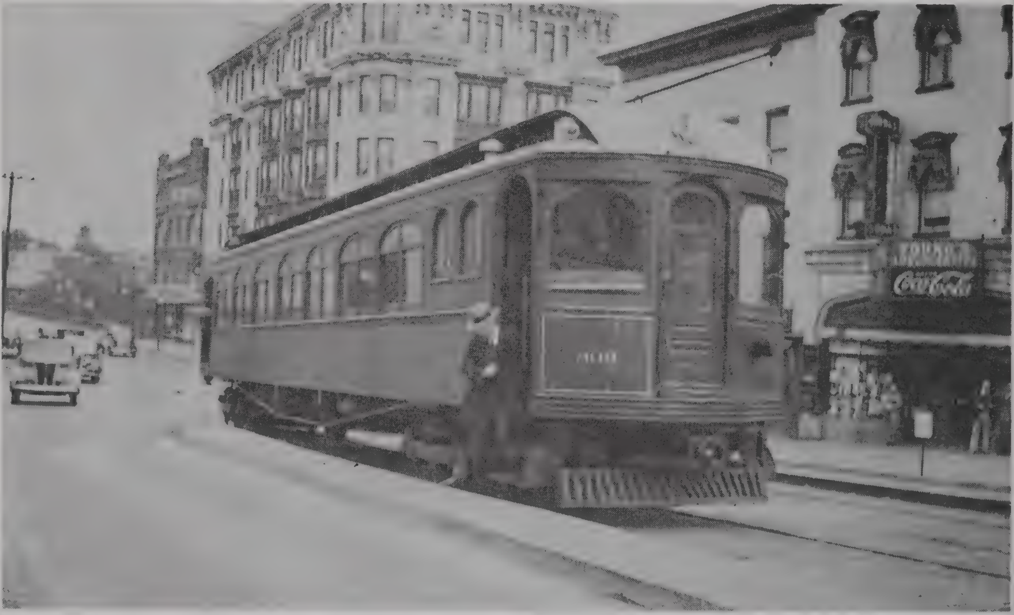
After the 1000 and 1020 series cars had been successfully tested over the entire "Liberty Bell Route" on February 9, 1939, the 800 series car assignments gradually dwindled. No. 809, towing disabled No. 700 from the Souderton Carbarn in May, 1939, recorded the 800 series cars' farewell Philadelphia Division performance.

During twenty-seven years of high speed operation, the handsome and durable 800 series interurbans established a record unique among interurban and railway systems—no passengers were fatally injured while riding within their sturdy bodies.

Between 1938 and 1940 the Utility Equipment Company, with whom LVT had agreed to trade two



Nos. 803 and 800 in a one-man era train on the northend of the Eighth Street Bridge, Allentown, Pennsylvania, on May 12, 1937. The two cars are returning to Fairview Carbarn after completing a northbound trip.

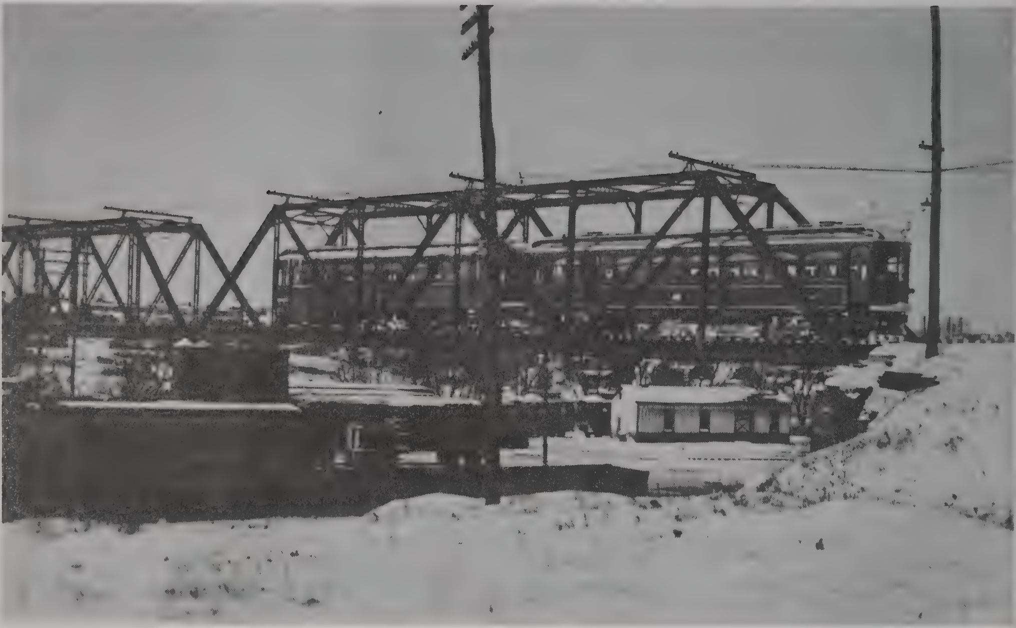


No. 809 in Bethlehem on October 3, 1937, with Philadelphia Chapter, N. R. H. S. charter trip. 800 series cars operated in Bethlehem only on charter or excursion service.

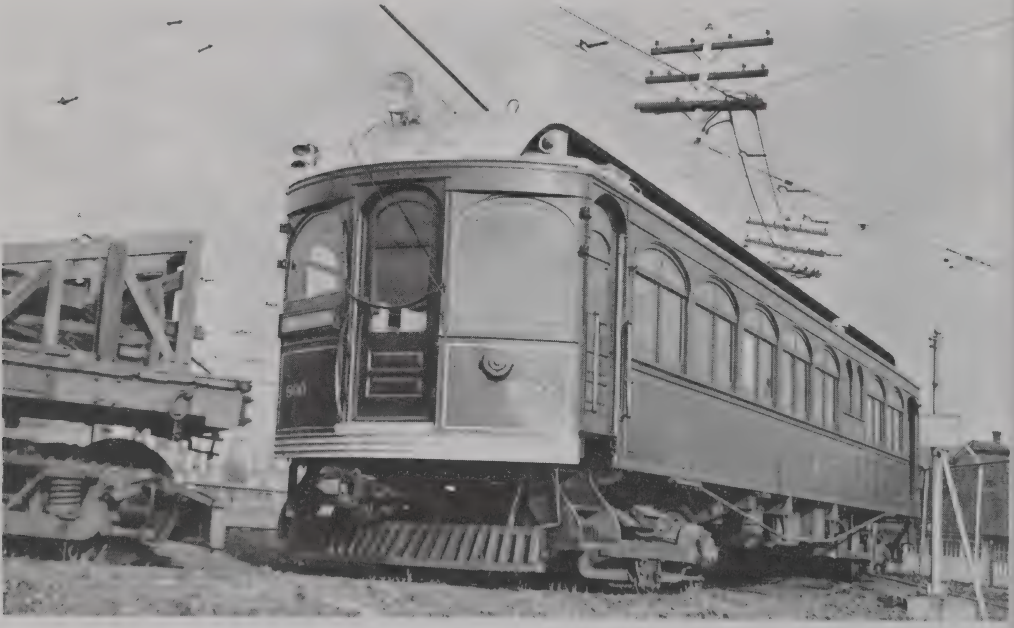
older cars for one newer but second-hand car, disposed of six 800 series cars in the following manner: Nos. 803 and 804 were scrapped at Fairview Carbarn in mid-August, 1940, and the bodies of Nos. 801, 805, 807, and 810, between August, 1938, and August, 1940, were sold privately for conversion, respectively, to a home near Sciota, Pennsylvania; a home in the rural area near Fogelsville west of Allentown; a utility building north of Allentown along U. S. Route No. 22; and a diner in Hellertown, Pennsylvania, where they remain. LVT retained and converted, in 1940, Nos. 800, 806, and 809 to freight cars Nos. C16, C17, and C18, identical to Nos. C14, and C15. A stationary head light was imbedded into the train door at each end of all C14 series freight cars at this time.

LVT's famed "Liberty Bell Route" ceased operation on September 6, 1951, and during the following winter months all interurbans and freight cars, except Nos. 1030 and C15, were scrapped at Bethlehem Steel Company's Bethlehem Plant. The Philadelphia Transportation Company purchased car No. C15, ex No. 808, for utility service over the city's standard gauge third rail Broad Street Subway system, and cars Nos. C17, ex No. 806, and No. C19, formerly C14, ex No. 802, for trucks and electrical equipment. No control or brake system change was required for train operation with their subway cars. PTC eventually sold Nos. C17 and C19 bodies to the Bethlehem Steel Company. In 1952, PTC No. T18, ex LVT No. C15, ex No. 808, rolled from the Broad Street Subway's Fern Rock shops. In the early morning hours the former handsome "Liberty Bell Route" limited may be observed fulfilling its lowly chore under Broad Street in Philadelphia and over the Delaware River Bridge line to Camden, New Jersey.

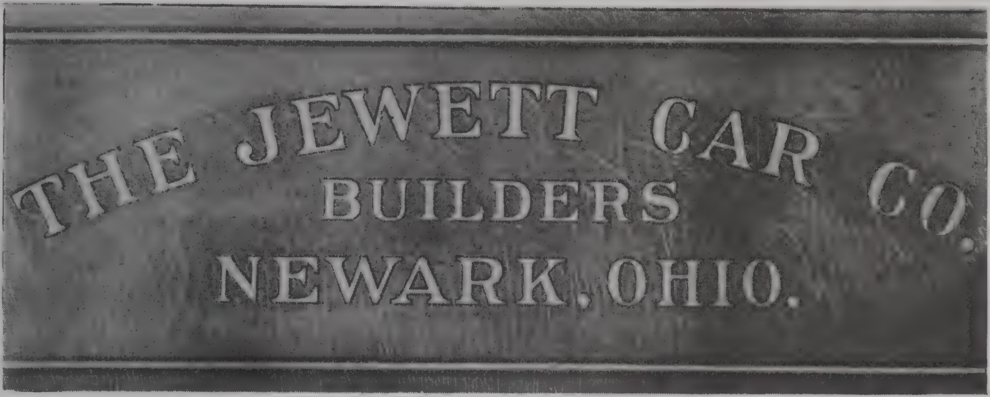
END



Nos. 803 and 800, already doomed to extinction, southbound on the South Allentown viaduct spanning Trout Creek and the Reading Company's East Penn yard on November 25, 1938.

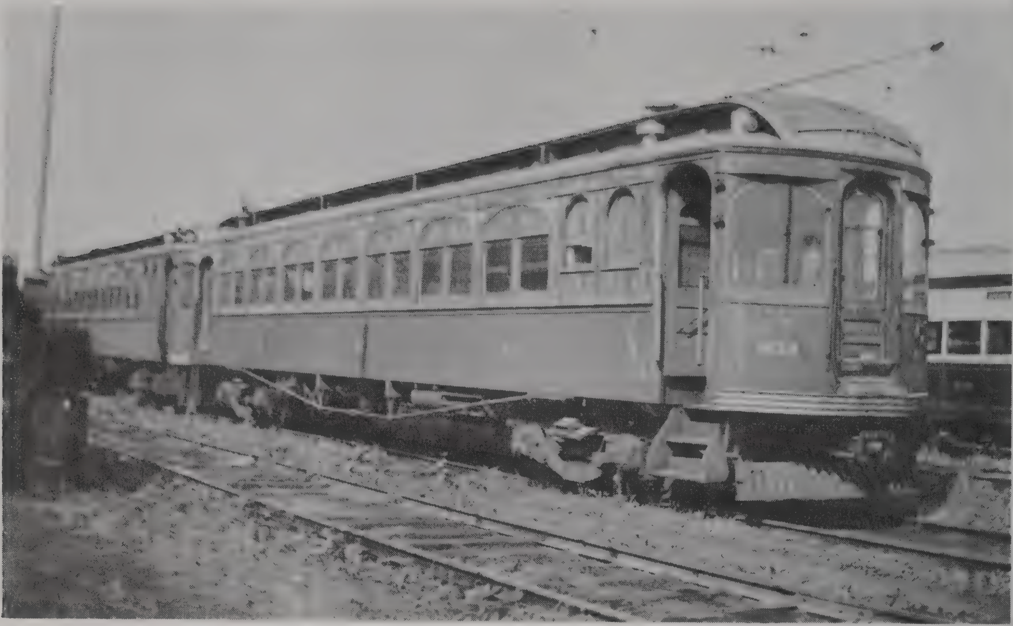


No. 800 at Fairview Carbarn on February 19, 1939, ten days after the 1000 series cars had been successfully tested, prepared for a southbound trip.

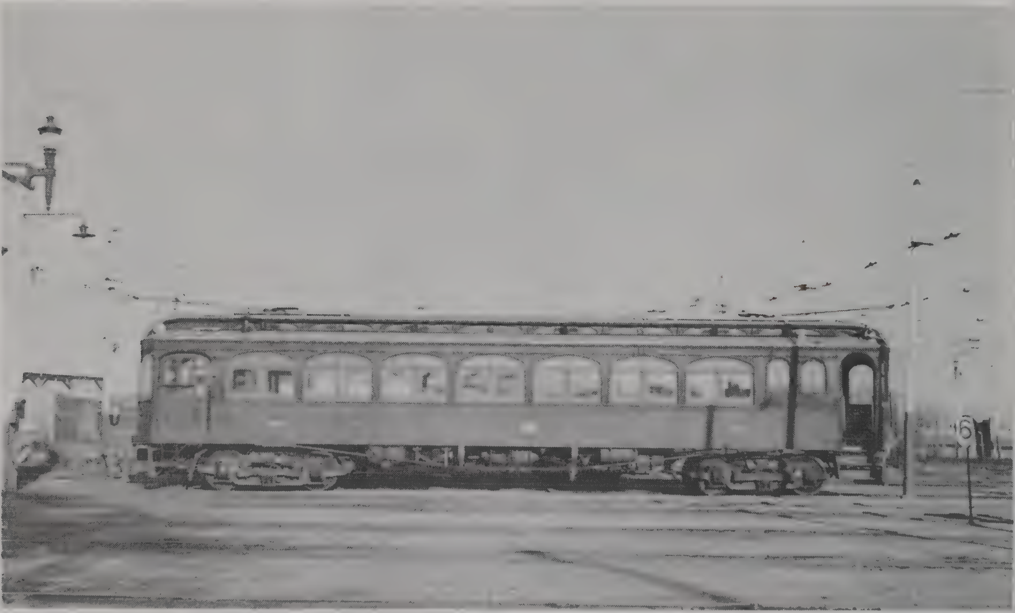


800 SERIES ROSTER

	1st Rebuilding	2nd Rebuilding	Disposition
800	One-man, 1936	Freight, No. C16, 1940	No. C16 scrapped, Bethlehem Steel Co., 1951.
801	—	—	Trucks scrapped, Fairview, body sold for home at Sciota, Pa., 1938.
802	Freight, No. C14, 1934 - 1935	Renumbered No. C19, 1942	No. C19 body scrapped, Bethlehem Steel Co., and trucks to PTC, 1951.
803	—	—	Scrapped at Fairview Carbarn, 1940.
804	—	—	Scrapped at Fairview Carbarn, 1940.
805	—	—	Trucks scrapped, Fairview, body sold for home west of Allentown, Pa., 1940.
806	Freight, No. C17, 1940	—	No. C17 body scrapped, Bethlehem Steel Co., and trucks to PTC, 1951.
807	—	—	Trucks scrapped, Fairview, body sold for utility building north of Allentown, 1940.
808	Freight, No. C15, 1935	—	No. C15 sold to Philadelphia Transportation Co., 1951. Now PTC utility No. T18, city std. gauge third rail subway lines.
809	All-coach, 1936	Freight, No. C18, 1940	No. C18 scrapped, Bethlehem Steel Co., 1951.
810	—	—	Out of service, 1932, Hatfield auto collision. Trucks scrapped, Fairview, and body for diner, Hellertown, Pa., 1938.
811	—	—	Gutted by fire on the P&W, September 1, 1929. Scrapped, Fairview, 1935.



No. 803 at the head end of a row of 800 series cars awaiting disposition during the summer of 1939. Note that the third rail beams and shoes have been removed from the trucks.



No. 807, out of service, at Fairview Carbarn on November 23, 1939, awaiting disposition.

800 SERIES TECHNICAL INFORMATION

Builder —Jewett Car Company, Newark, Ohio.
800 to 805—1912. 806 to 811—1913.

Cost —$12,000 each.

Body —Combination baggage-passenger. Steel frame with structural side plates; wood above window sills; and a solid inlaid mahogany interior. 55 ft., 10½ in. long; 9 ft. wide; 13 ft. high from rails to trolley boards.

Trucks —800 to 805—Baldwin No. 78-30A, roller bearing; 6 in. dia. axles; 36 in. dia. forged steel wheels; 78 in. wheel base; 5x9 in. journals. Plain bearing replacements.
806 to 811—Brill No. MCB3X, plain bearings, same dimensions.

Control —WH AL type C36 with C36C controller and relay advancing button selecting next contactor step.

Motors —4 WH303A; 22:55 gear ratio; rated 115 horsepower at 600 volts.

Brakes —WH, AMM straight and automatic; M22 brake valves; Peacock hand brake wheels.

Couplers —800 to 805—Westinghouse car and air, 1912; adapter for P&W-LVT car train operation, 1912-1913; Tomlinson form 16, car and air, 1913.
806 to 811—Tomlinson form 16, car and air, 1913.

Weight —800 to 805—82,420 lbs. 806 to 811—82,600 lbs.

Seating Capacity —800 to 803—54.
804 to 805—44 with club chairs; 54 in 1913 with walkover seats.
806 to 811—54.

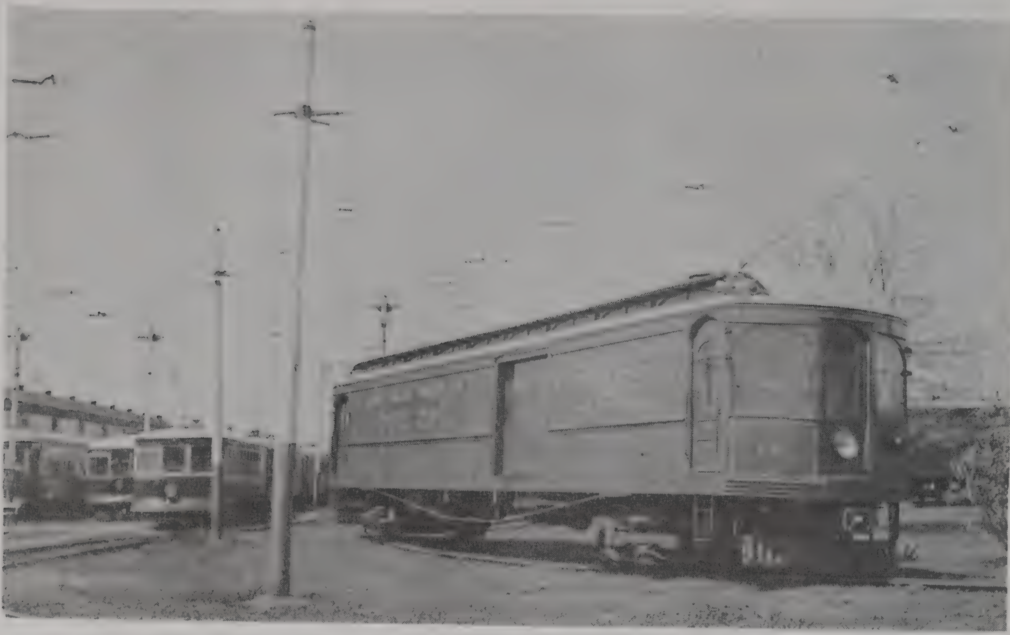
Color —1912 to 1918—Medium chrome green; varnished; gold striping, monogram, lettering, and large numbers; chrome yellow roof; black anti-climbers, undercarriage, and headlight.
1918 to 1928—Bright red; varnished; gold striping, monogram, lettering, and large numbers; tan roof; black anti-climbers, undercarriage, and headlight.
1928 to 1936—Dark red; varnished; silver striping, monogram, lettering, large numbers, roof, anti-climbers, and headlight; black undercarriage.
1936 to 1939—No. 800, same as 1928-1936 except small numbers and no lettering.
No. 809, dark red; varnished; silver roof; goid striping, monogram, and small numbers; black anti-climbers, headlight, and undercarriage. No lettering.
Nos. 803, 805, 806, and 807, dark flat red; no striping; silver monogram, small numbers, roof, anti-climbers, and headlight. No lettering.

Signal Lights —800 to 805—1912 to 1923—Adlake oil in corner post sockets.
1923 to 1939—Electric "birdhouse" in roof.
806 to 811—1913 —Electric bulls-eye in letterboard.
1913 to 1923—Adlake oil in corner post sockets.
1923 to 1939—Electric "birdhouse" in roof.

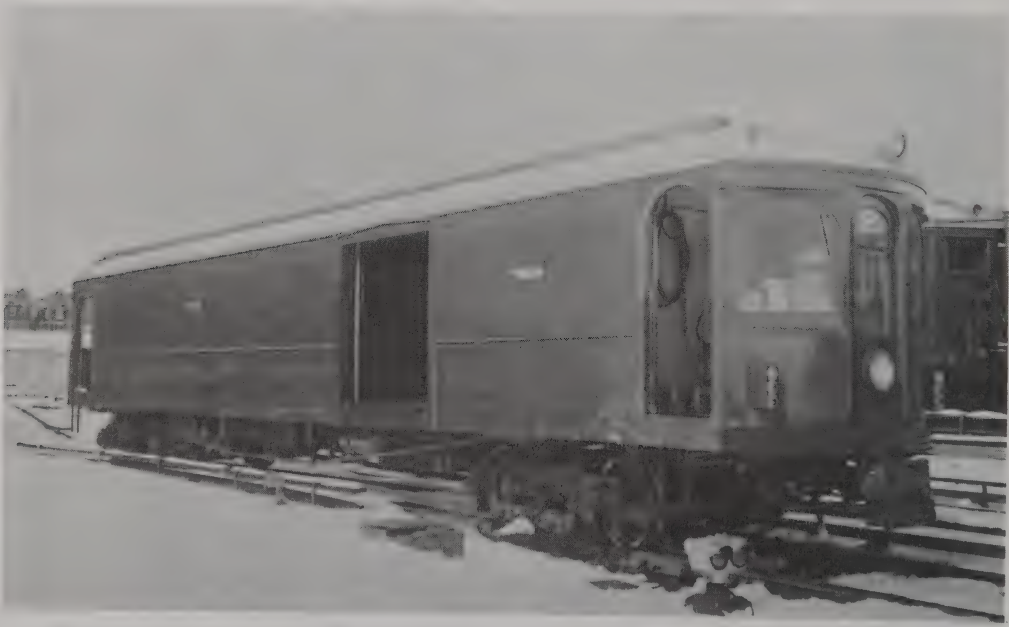
Conversion - Freight—802 to C14—1934-1935; renumbered C19, 1942.
808 to C15—1935.
800 to C16—1940.
806 to C17—1940.
809 to C18—1940.
One-man—800—1936.
All coach—809—1936.

Whistles —1912 to 1914—10 in. single tone above motorman's window.
1914 to 1918—10 in. single tone lengthwise on roof mat.
1918 to 1927—10 in. single tone and 5 in. chime with shield on clerestory wall above baggage compartment.
1927 to 1939—Twin Strombos air horns.

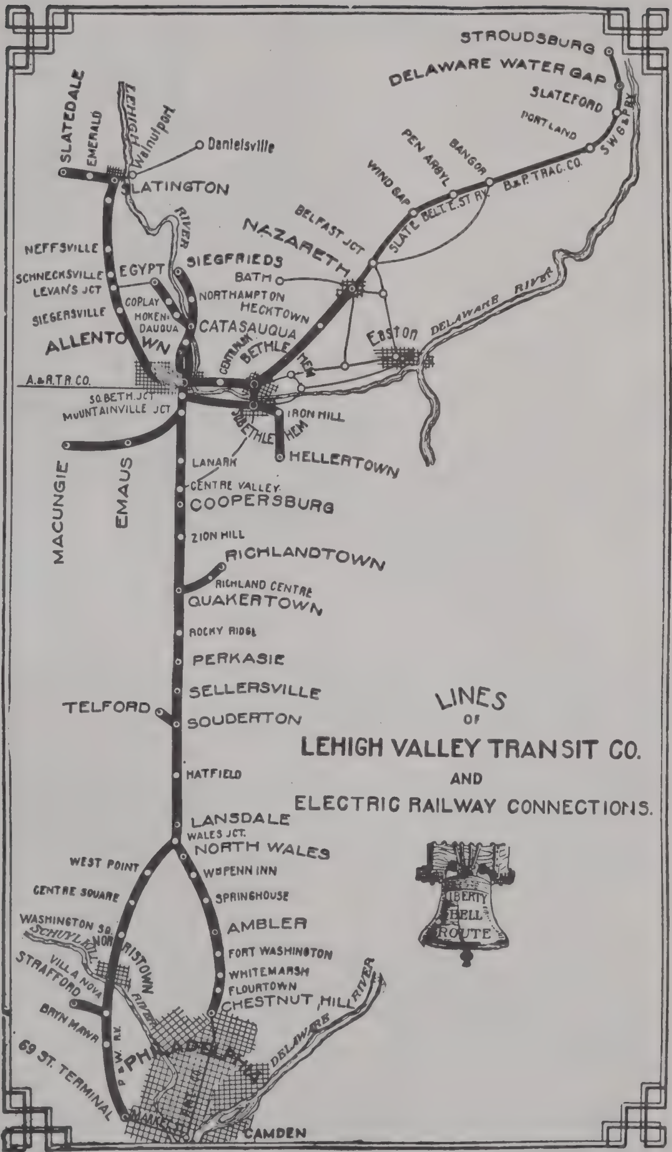
Sold —Freight C15, ex 808; C17, ex 806; and C19, ex C14, ex 802, to Philadelphia Transportation Company in 1951. Nos. C17 and C19 scrapped after electric equipment and trucks were removed. No. C15 now operating as PTC utility car No. T18 on standard gauge third-rail Broad Street Subway lines in Philadelphia, Pennsylvania.

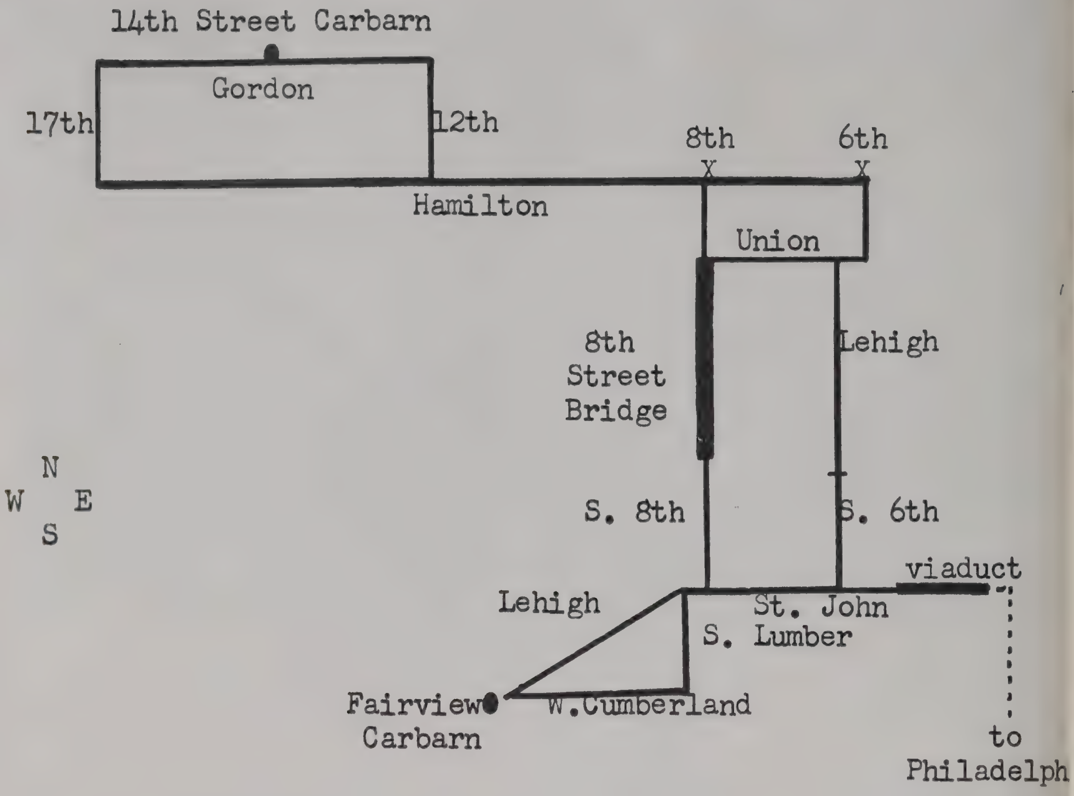


No. C16, ex No. 800, on May 12, 1940, shortly after conversion to freight service, in Sunday storage on the Fairview Carbarn loop, built in 1914 to reverse operating ends of 800 series cars. Note steel sheath in place of destination sign box.



Philadelphia Transportation Company's standard gauge subway utility car No. T18, former Lehigh Valley Transit No. C15, ex No. 808, at Fern Rock shops on March 8, 1953.


LINES OF
LEHIGH VALLEY TRANSIT CO.
AND
ELECTRIC RAILWAY CONNECTIONS.
LIBERTY BELL ROUTE
STROUDSBURG
DELAWARE WATER GAP
SLATEFORD
PORTLAND
S.W.G.&P.RY.
BANGOR
PEN ARGYL
WIND GAP
B.&P. TRAC. CO.
SLATE BELT E. ST. RY.
BELFAST JCT
NAZARETH
BATH
HECKTOWN
EASTON
DELAWARE RIVER
SLATEDALE
EMERALD
LEHIGH RIVER
Walnutport
Danielsville
SLATINGTON
NEFFSVILLE
SCHNECKSVILLE
LEVAN'S JCT
SIEGERSVILLE
EGYPT
COPLAY
HOKENDAUQUA
SIEGFRIEDS
NORTHAMPTON
CATASAUQUA
ALLENTOWN
A.&R.T.R. CO.
CENTRAL PARK
BETHLEHEM
SO. BETH. JCT
MOUNTAINVILLE JCT
SO. BETHLEHEM
IRON HILL
HELLERTOWN
MACUNGIE
EMAUS
LANARK
CENTRE VALLEY
COOPERSBURG
ZION HILL
RICHLANDTOWN
RICHLAND CENTRE
QUAKERTOWN
ROCKY RIDGE
PERKASIE
SELLERSVILLE
TELFORD
SOUDERTON
HATFIELD
LANSDALE
WALES JCT.
NORTH WALES
WEST POINT
W. PENN INN
CENTRE SQUARE
SPRINGHOUSE
WASHINGTON SQ.
AMBLER
SCHUYLKILL RIVER
NORRISTOWN
FORT WASHINGTON
WHITEMARSH
FLOURTOWN
VILLA NOVA
STRAFFORD
CHESTNUT HILL
BRYN MAWR
P.&W. RY.
PHILADELPHIA
DELAWARE RIVER
69 ST. TERMINAL
MARKET ST.
CAMDEN



800 Series car street routes in Allentown between termini and carbarns and from termini to Philadelphia.

1912-1913 Terminus at 6th and Hamilton streets. Carbarn at 14th and Gordon streets. To Philadelphia via S. 6 Union, Lehigh, S. 6th, St. John and South Allentow viaduct.

1913-1914 Terminus at 8th and Hamilton streets. Carbarn at 14th and Gordon streets. Terminus at 8th and Hami ton streets. To Philadelphia via S. 8th, 8th Stre Bridge, St. John and South Allentown viaduct.

1914-1939 Terminus at 8th and Hamilton streets. Carbarn at Fairview, Lehigh and W. Cumberland streets. Phila delphia route same as 1913-1914.

W. Cumberland and S. Lumber streets trackage built in 1923. Lehigh street trackage from St. John and S. Lumber streets intersection to W. Cumberland abandoned in 1932.

Note - Diagram not to scale.

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